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	Bidder Complies	
	Yes	No
<p>The bidder shall state the location of the factory where the apparatus is to be built.</p> <p><u>SINGLE SOURCE MANUFACTURER</u></p> <p>Bids shall only be accepted from a single source apparatus manufacturer. The definition of single source is a manufacturer that designs and manufactures their products using an integrated approach, including the chassis, cab weldment, cab, pump house (including the sheet metal enclosure, valve controls, piping and operators panel) body and aerial device being designed, fabricated and assembled on the bidder's premises. The electrical system (hardwire or multiplex) shall be both designed and integrated by the same apparatus manufacturer. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) must be from a single source manufacturer and not split between manufacturers (i.e. body, pump house, cab weldment, chassis and aerial). The bidder shall provide evidence that they comply with this requirement.</p> <p><u>SPECIAL INSTRUCTIONS</u></p> <p>The apparatus being proposed shall be designed and built to match the Duplicate of template truck 30411.. However, some variation may be necessary due to changes in our manufacturing processes or our product offering. Revisions in NFPA guidelines and/or other regulations may also affect our ability to match the previous unit.</p> <p><u>NFPA 2016 STANDARDS</u></p> <p>This unit shall comply with the NFPA standards effective January 1, 2016, except for fire department directed exceptions. These exceptions shall be set forth in the Statement of Exceptions.</p> <p>Certification of slip resistance of all stepping, standing and walking surfaces shall be supplied with delivery of the apparatus.</p> <p>All horizontal surfaces designated as a standing or walking surface that are greater than 48.00" above the ground must be defined by a 1.00" wide line along its outside perimeter. Perimeter markings and designated access paths to destination points shall be identified on the customer approval print and are shown as approximate. Actual location(s) shall be determined based on materials used and actual conditions at final build. Access paths may pass through hose storage areas and opening or removal of covers or restraints may be required. Access paths may require the operation of devices and equipment such as the aerial device or ladder rack.</p> <p>A plate that is highly visible to the driver while seated shall be provided. This plate shall show the overall height, length, and gross vehicle weight rating.</p> <p>The manufacturer shall have programs in place for training, proficiency testing and performance for any staff involved with certifications.</p>		

	Bidder Complies	
	Yes	No
<p>An official of the company shall designate, in writing, who is qualified to witness and certify test results.</p> <p><u>ULC COMPLIANCY</u> Apparatus proposed by the bidder shall meet the applicable requirements of the CAN/ULC-S515 standard as stated in the current edition at the time of contract execution. Fire department's specifications that differ from ULC specifications shall be indicated in the proposal as "non-ULC" compliant. The apparatus shall be in service at an elevation of [Fill in Blank].</p> <p><u>VEHICLE INSPECTION PROGRAM CERTIFICATION</u> To assure the vehicle is built to current CAN/ULC-S515 standards, the apparatus, in its entirety, shall be third-party, independent, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition of CAN/ULC-S515. The certification includes: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus (no exception).</p> <p>A placard shall be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit.</p> <p><u>INSPECTION CERTIFICATE</u> A third party inspection certificate for the aerial device shall be furnished upon delivery of the aerial device. The certificate shall be Underwriters Laboratories Inc. Type 1 and shall indicate that the aerial device has been inspected on the production line and after final assembly.</p> <p>Visual structural inspections shall be performed on all welds on both aluminum and steel ladders.</p> <p>On critical weld areas, or on any suspected defective area, the following tests shall be conducted:</p> <ul style="list-style-type: none"> - Magnetic particle inspection shall be conducted on steel aerials to assure the integrity of the weldments and to detect any flaws or weaknesses. Magnets shall be placed on each side of the weld while iron powder is placed on the weld itself. The powder shall detect any crack that may exist. This test shall conform to ASTM E709 and be performed prior to assembly of the aerial device. - A liquid penetrant test shall be conducted on aluminum aerials to assure the integrity of the weldments and to detect any flaws or weaknesses. This test shall conform to ASTM E165 and be performed prior to assembly of the aerial device. - Ultrasonic inspection shall be conducted on all aerials to detect any flaws in pins, bolts and other critical mounting components. 		

	Bidder Complies	
	Yes	No
<p>In addition to the tests above, functional tests, load tests, and stability tests shall be performed on all aerials. These tests shall determine any unusual deflection, noise, vibration, or instability characteristics of the unit.</p> <p><u>PUMP TEST</u> The pump shall be tested, approved and certified by Underwriter's Laboratory. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the manufacturer's record of pump construction details shall be forwarded to the Fire Department.</p> <p><u>GENERATOR TEST</u> If the unit has a generator, the generator shall be tested, approved, and certified by Underwriters Laboratories. The test results shall be provided to the Fire Department at the time of delivery.</p> <p><u>BREATHING AIR TEST</u> If the unit has breathing air, the apparatus manufacturer shall draw an air sample from the air system and certify that the air quality meets the requirements of CSA Z180.1-13, <i>Compressed Breathing Air and Systems</i>.</p> <p><u>AFTERMARKET SUPPORT WEBSITE</u> A Customer Service website shall provide authorized dealers access to comprehensive information pertaining to the maintenance and service of their customer's apparatus. This tool shall provide the authorized dealer the ability to service and support their customers to the best of their ability with factory support at their fingertips.</p> <p>This website shall also be accessible to the end user through the guest login. Limited access is available and vehicle specific parts information accessible by entering a specific VIN number. All end users should see their local authorized dealer for additional support and service.</p> <p>The website shall provide the following to the designated individuals:</p> <ul style="list-style-type: none"> - Authorized dealer only - ability to access truck detail information on the major components of the vehicle, warranty information, available vehicle photographs, vehicle drawings, sales options, applicable vehicle software downloads, etc. - Authorized dealer and customer - parts look-up capability, with the aid of digital photographs, part drawings, and assembly drawings. - Authorized dealer only - ability to electronically submit warranty claims directly to the factory for reimbursement. 		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> - Authorized dealer only - accessibility to multiple dealer reports that allow the dealership to maintain communication with the customer on the status of orders, claims, and phone contacts. - Authorized dealer and customer - access to all currently published Operation and Maintenance and Service publications. - Authorized dealer only - access to manufacturer Service Bulletins and Work Instructions containing information on current service topics and recommendations provided. - Authorized dealer and customer - access to upcoming training classes offered by the manufacturer. - Authorized dealer only - access to interactive electronic learning modules (Operators Guides) covering the operation of major vehicle components. - Authorized dealer only - access to customer service articles, corporate news, quarterly newsletters, and key contacts. <p><u>SERVICE AND WARRANTY SUPPORT (DEALERSHIP)</u></p> <p>TO INSURE FULL SERVICE AFTER DELIVERY, THE SELLING BIDDER/DEALERSHIP MUST BE CAPABLE OF PROVIDING SERVICE WHEN REQUIRED.</p> <p>The bidder/dealership shall show that the company is in position to render prompt service and to furnish replacement parts.</p> <p>Each bidder/dealership must be able to display that they are actively in the fire apparatus service business by operating a factory authorized service center and parts repository capable of satisfying the warranty service requirements and parts requirements of the vehicle(s) being purchased.</p> <p>The bidder/dealership must state the location of this authorized service center. This service center must have a staff of factory-trained mechanics, well versed in all aspects of service for all major components of the apparatus. The service center must have a staff of a minimum of two (2) certified Master EVT technicians, four factory-trained mobile mechanics and all technicians must be licensed by the Ontario College of Trades and hold a valid 310T certification. Copies of EVT certifications shall be provided with the bid proposal. No Exception. Bidders who rely on third party subcontractors or part time staff for service, or require the Municipality to perform their own repairs and invoice back shall not be considered.</p>		

	Bidder Complies	
	Yes	No
<p>The dealer must maintain a 24 hour a day, 7 day a week, toll free emergency hot line where a certified EVT is ready to respond providing technical expertise in the repair of the fire apparatus, but also demonstrating the commitment to service after the sale.</p> <p><u>BID BOND NOT REQUESTED</u></p> <p>A bid bond shall not be included. If requested, the following shall apply:</p> <p>All bidders shall provide a bid bond as security for the bid in the form of a 5% bid bond to accompany their bid. This bid bond shall be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond shall be issued by an authorized representative of the Surety Company and shall be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond shall include language, which assures that the bidder/principal shall give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.</p> <p>Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle shall apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle shall not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision shall prevail.</p> <p><u>PERFORMANCE BOND NOT REQUESTED</u></p> <p>A performance bond shall not be included. If requested at a later date, one shall be provided to you for an additional cost and the following shall apply:</p> <p>The successful bidder shall furnish a Performance and Payment bond (Bond) equal to 100 percent of the total contract amount within 30 days of the notice of award. Such Bond shall be in a form acceptable to the Owner and issued by a surety company included within the Department of Treasury's Listing of Approved Sureties (Department Circular 570) with a minimum A.M. Best Financial Strength Rating of A and Size Category of XV. In the event of a bond issued by a surety of a lesser Size Category, a minimum Financial Strength rating of A+ is required.</p> <p>Bidder and Bidder's surety agree that the Bond issued hereunder, whether expressly stated or not, also includes the surety's guarantee of the vehicle manufacturer's Bumper to Bumper warranty period included within this proposal. Owner agrees that the penal amount of this bond shall be simultaneously amended to 25 percent of the total contract amount upon satisfactory acceptance and delivery of the vehicle(s) included herein. Notwithstanding anything contained within this</p>		

	Bidder Complies	
	Yes	No
<p>contract to the contrary, the surety's liability for any warranties of any type shall not exceed three (3) years from the date of such satisfactory acceptance and delivery, or the actual Bumper to Bumper warranty period, whichever is shorter.</p> <p><u>APPROVAL DRAWING</u></p> <p>A drawing of the proposed apparatus shall be provided for approval before construction begins. The sales representative shall also have a copy of the same drawing. The finalized and approved drawing shall become part of the contract documents. This drawing shall indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.</p> <p>A "revised" approval drawing of the apparatus shall be prepared and submitted by the manufacturer to the purchaser showing any changes made to the approval drawing.</p> <p><u>ELECTRICAL WIRING DIAGRAMS</u></p> <p>Two (2) electrical wiring diagrams, prepared for the model of chassis and body, shall be provided.</p> <p><u>CHASSIS</u></p> <p>The chassis provided shall be a new, tilt-type custom fire apparatus. The chassis shall be manufactured in the apparatus body builder's facility, eliminating any split responsibility. The chassis shall be designed and manufactured for heavy-duty service, with adequate strength and capacity for the intended load to be sustained and the type of service required.</p> <p><u>WHEELBASE</u></p> <p>The wheelbase of the vehicle shall be no greater than 253.50".</p> <p><u>GVW RATING</u></p> <p>The gross vehicle weight rating shall be a minimum of 80,800#.</p> <p><u>FRAME</u></p> <p>The chassis frame shall be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus.</p> <p>The side rails shall have a 13.38" tall web over the front and mid sections of the chassis, with a continuous smooth taper to 10.75" over the rear axle.</p> <p>Each rail shall have a section modulus of 25.992 cubic inches and a resisting bending moment (rbm) of 3,119,040 in-lb over the critical regions of the frame assembly, with a section modulus of 18.96 cubic inches with an rbm of 2,275,200 in-lb over the rear axle.</p> <p>The frame rails shall be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges.</p>		

	Bidder Complies	
	Yes	No
<p><u>FRAME REINFORCEMENT</u></p> <p>In addition, a mainframe inverted "L" liner shall be provided. It shall be heat-treated steel measuring 12.00" x 3.00" x 0.25". Each liner shall have a section modulus of 7.795 cubic inches, yield strength of 110,000 psi, and rbm of 857,462 in-lb. Total rbm at wheelbase center shall be 3,976,502 in-lb.</p> <p>The frame liner shall be mounted inside of the chassis frame rail and extend the full length of the frame.</p> <p><u>FRONT NON DRIVE AXLE</u></p> <p>The front axle shall be of the independent suspension design with a ground rating of 22,800 lb.</p> <p>The turning angle shall be 45 degrees.</p> <p><u>FRONT SUSPENSION</u></p> <p>Front independent suspension shall be provided with a minimum ground rating of 22,800 lb.</p> <p><u>FRONT SHOCK ABSORBERS</u></p> <p>Heavy-duty telescoping shock absorbers shall be provided on the front suspension.</p> <p><u>FRONT OIL SEALS</u></p> <p>Oil seals with viewing window shall be provided on the front axle.</p> <p><u>FRONT TIRES</u></p> <p>Front tires shall be 425/65R22.50 radials, 20 ply highway tread, rated for 22,800 lb maximum axle load and 68 mph maximum speed.</p> <p>The tires shall be mounted on 22.50" x 12.25" polished aluminum disc type wheels with a ten (10) stud, 11.25" bolt circle.</p> <p><u>REAR AXLE</u></p> <p>The rear axle shall be a tandem axle assembly with a capacity of 58,000 lb.</p> <p>An inter-axle differential, which divides torque evenly between axles, shall be provided, with an indicator light mounted on the cab instrument panel.</p> <p><u>TOP SPEED OF VEHICLE</u></p> <p>NFPA 1901, 2016 edition requires limits on the top speed of vehicles. NFPA 4.15.2 requires that the maximum top speed of fire apparatus with a GVWR over 26,000 lb shall not exceed either 68 mph or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower. NFPA 4.15.3 requires that if the combined water tank and foam agent tank on the fire apparatus exceed 1250 gallons or the GVWR of the vehicle is over 50,000 lb, the maximum top speed of the apparatus shall not exceed either 60 mph or the manufacturer's</p>		

	Bidder Complies	
	Yes	No
<p>maximum fire service speed rating for the tires installed on the apparatus, whichever is lower. It is the intention of the standard to improve safety by limiting the speed of all apparatus to 68 mph, and tankers or heavy apparatus to 60 mph. By requesting an exception to this requirement, the purchasing authority is consciously choosing to operate their apparatus at speeds above the limits designated as safe speeds by the NFPA Technical Committee on Fire Department Apparatus.</p> <p>The top speed of the apparatus as manufactured exceeds the NFPA requirements. Per fire department specification of a top speed that exceeds NFPA requirements, the apparatus shall be non-compliant to NFPA 1901 standards at time of contract execution.</p> <p>A rear axle ratio shall be furnished to allow the vehicle to reach an approximate top speed of 68 MPH.</p> <p><u>REAR SUSPENSION</u></p> <p>The rear suspension shall be a rubber bolster system with an equalizing beam design that distributes the load equally between the two (2) axles. The ground rating of the suspension shall be 58,000 lb.</p> <p><u>REAR OIL SEALS</u></p> <p>Oil seals shall be provided on the rear axle(s).</p> <p><u>REAR TIRES</u></p> <p>Rear tires shall be eight (8) 315/80R22.50 radials, load range L, all position tread, rated for 66,160 lb maximum axle load and 68 mph maximum speed.</p> <p>The outside tires shall be mounted on 22.50" x 9.00" polished aluminum disc wheels with a ten (10) stud 11.25" bolt circle.</p> <p>The inside tires shall be mounted on 22.50" x 9.00" steel disc wheels with a ten (10) stud 11.25" bolt circle.</p> <p><u>TIRE BALANCE</u></p> <p>All tires shall be balanced with balancing beads. The beads shall be inserted into the tire and eliminate the need for wheel weights.</p> <p><u>TIRE PRESSURE MANAGEMENT</u></p> <p>There shall be a LED tire alert pressure management system provided, that shall monitor each tire's pressure. A sensor shall be provided on the valve stem of each tire for a total of 10 tires.</p> <p>The sensor shall calibrate to the tire pressure when installed on the valve stem for pressures between 10 and 200 psi. The sensor shall activate an integral battery operated LED when the pressure of that tire drops 5 to 8 psi.</p>		

	Bidder Complies	
	Yes	No
<p>Removing the cap from the sensor shall indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED shall immediately start to flash.</p> <p><u>FRONT HUB COVERS</u> Stainless steel hub covers shall be provided on the front axle. An oil level viewing window shall be provided.</p> <p><u>REAR HUB COVERS</u> Stainless steel, high hat, hub covers shall be provided on the rear axle hubs.</p> <p><u>MUD FLAPS</u> Mud flaps shall be installed behind the front and rear wheels of the apparatus.</p> <p><u>WHEEL CHOCKS</u> There shall be one (1) pair of folding aluminum alloy wheel blocks, with easy-grip handle provided.</p> <p><u>WHEEL CHOCK BRACKETS</u> There shall be one (1) pair of horizontal mounting wheel chock brackets provided for the folding wheel chocks. The brackets shall be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets shall be mounted forward of the left side rear tire.</p> <p><u>ELECTRONIC STABILITY CONTROL</u> A vehicle control system shall be provided as an integral part of the ABS brake system from Meritor Wabco.</p> <p>The system shall monitor and update the lateral acceleration of the vehicle and compare it to a critical threshold where a side roll event may occur. If the critical threshold is met, the vehicle control system shall automatically reduce engine RPM, engage the engine retarder (if equipped), and selectively apply brakes to the individual wheel ends of the front and rear axles to reduce the possibility of a side roll event.</p> <p>The system shall monitor directional stability through a lateral accelerometer, steer angle sensor and yaw rate sensor. If spinout or drift out is detected, the vehicle control system shall selectively apply brakes to the individual wheel ends of the front and rear axles to bring the vehicle back to its intended direction.</p> <p><u>ANTI-LOCK BRAKE SYSTEM</u> The vehicle shall be equipped with an anti-lock braking system. The ABS shall provide a six (6) channel anti-lock braking control on both the front and rear wheels. A digitally controlled system that utilizes microprocessor technology shall control the anti-lock braking system. Each wheel shall be monitored by the system. When any wheel begins to lockup, a signal shall be sent</p>		

	Bidder Complies	
	Yes	No
<p>to the control unit. This control unit shall then reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system shall eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.</p> <p><u>AUTOMATIC TRACTION CONTROL</u></p> <p>An anti-slip feature shall be included with the ABS. The Automatic Traction Control shall be used for traction in poor road and weather conditions. The Automatic Traction Control shall act as an electronic differential lock that shall not allow a driving wheel to spin, thereby supplying traction at all times. The ABS electronic control unit (ECU) shall work with the engine ECU, sharing information concerning wheel slip. Engine ECU shall use information to control engine speed, allowing only as much throttle application as required for the available traction, regardless of how much the driver is asking for. A "mud/snow" switch shall be provided on the instrument panel. Activation of the switch shall allow additional tire slip to let the truck climb out and get on top of deep snow or mud.</p> <p><u>BRAKES</u></p> <p>The service brake system shall be full air type. The front brakes shall be 17.00" disc type.</p> <p>The rear brakes shall be 16.50" x 7.00" cam operated with automatic slack adjusters. Dust shields shall be provided.</p> <p><u>BRAKE SYSTEM AIR COMPRESSOR</u></p> <p>The air compressor shall have 18.7 cubic feet per minute output.</p> <p><u>BRAKE SYSTEM</u></p> <p>The brake system shall include:</p> <ul style="list-style-type: none"> • Dual brake treadle valve • Heated automatic moisture ejector on air dryer • Total air system capacity of 8,108 cubic inches • Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi • Spring set parking brake system • Parking brake operated by a push-pull style control valve • A parking "brake on" indicator light on instrument panel • Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, shall be provided with an automatic spring brake application at 40 psi • A pressure protection valve shall be provided to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa) • 1/4 turn drain valve on each air tank 		

Bidder Complies	
Yes	No

The air tank shall be primed and painted to meet a minimum 750 hour salt spray test. To reduce the effects of corrosion, the air tank shall be mounted with stainless steel brackets (no exception).

BRAKE SYSTEM AIR DRYER

The air dryer shall be properly sized for the brake system with spin-on coalescing filter cartridge and 100 watt heater.

BRAKE LINES

Color-coded nylon brake lines shall be provided. The lines shall be wrapped in a heat protective loom where necessary in the chassis.

AIR INLET

One (1) air inlet with 3D series male coupling shall be provided. It shall allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet shall be located in the driver side lower step well of cab. A check valve shall be provided to prevent reverse flow of air. The inlet shall discharge into the "wet" tank of the brake system. A mating female fitting shall also be provided with the loose equipment.

RECESSED BOX FOR AIR FITTING

One (1) air inlet shall have an aluminum treadplate recessed box provided. The box(es) shall allow the air fitting to be recessed inside the stepwell to prevent damage. driver side step well..

ALL WHEEL LOCK-UP

An additional all wheel lock-up system shall be installed which applies air to the front brakes only. The standard spring brake control valve system shall be used for the rear.

ENGINE

The chassis shall be powered by an electronically controlled engine as described below:

Power:	600 hp at 1800 rpm
Torque:	1850 lb-ft at 1200 rpm
Governed Speed:	2000 rpm
Emissions Level:	EPA 2016
Fuel:	Diesel
Cylinders:	Six (6)
Displacement:	912 cubic inches (14.9L)
Starter:	Heavy duty
Fuel Filters:	Frame mounted spin-on style primary filter with water separator and water-in-fuel sensor

	Bidder Complies	
	Yes	No
<p>The engine shall include On-board diagnostics (OBD), which provides self diagnostic and reporting. The system shall give the owner or repair technician access to state of health information for various vehicle sub systems. The system shall monitor vehicle systems, engine and after treatment. The system shall illuminate a malfunction indicator light on the dash console if a problem is detected.</p> <p><u>HIGH IDLE</u></p> <p>A high idle switch shall be provided, inside the cab, on the instrument panel, that shall automatically maintain a preset engine rpm. A switch shall be installed, at the cab instrument panel, for activation/deactivation.</p> <p>The high idle shall be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light shall be provided, adjacent to the switch. The light shall illuminate when the above conditions are met. The light shall be labeled "OK to Engage High Idle."</p> <p><u>ENGINE BRAKE</u></p> <p>An engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.</p> <p>The driver shall be able to turn the engine brake system on/off and have a high, medium and low setting.</p> <p>The engine brake shall activate when the system is on and the throttle is released.</p> <p>The high setting of the brake application shall activate and work simultaneously with the variable geometry turbo (VGT) provided on the engine.</p> <p>The engine brake shall be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.</p> <p>The ABS system shall automatically disengage the auxiliary braking device, when required.</p> <p><u>CLUTCH FAN</u></p> <p>A fan clutch shall be provided. The fan clutch shall be automatic when the pump transmission is in "Road" position, and fully engaged in "Pump" position.</p> <p><u>ENGINE AIR INTAKE</u></p> <p>An air intake with an ember separator (to prevent road dirt, burning embers, and recirculating hot air from entering the engine) shall be mounted at the front of the apparatus, on the passenger side of the engine.</p>		

	Bidder Complies	
	Yes	No
<p>The ember separator shall be mounted in the air intake with flame retardant, roto-molded polyethylene housing. It shall be easily accessible by the hinged access panel at the front of the vehicle.</p> <p><u>EXHAUST SYSTEM</u></p> <p>The exhaust system shall include a diesel particulate filter (DPF) and a selective catalytic reduction (SCR) device to meet current EPA standards. The exhaust system shall be stainless steel from the turbo to the inlet of the SCR device and shall be 5.00" in diameter. An insulation wrap shall be provided on all exhaust pipes between the turbo and SCR to minimize the transfer of heat to the cab. The exhaust shall terminate horizontally ahead of the right side rear wheels. A tailpipe diffuser shall be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields shall be provided to isolate chassis and body components from the heat of the tailpipe diffuser.</p> <p><u>RADIATOR</u></p> <p>The radiator and the complete cooling system shall meet or exceed NFPA and engine manufacturer cooling system standards.</p> <p>For maximum corrosion resistance and cooling performance, the entire radiator core shall be constructed using long life aluminum alloy. The core shall be made of aluminum fins, having a serpentine design, brazed to aluminum tubes. The tubes shall be brazed to aluminum headers. No solder joints or leaded material of any kind shall be acceptable in the core assembly. The radiator core shall have a minimum frontal area of 1434 square inches. Supply tank made of glass-reinforced nylon and a return tank of cast aluminum alloy shall be crimped on to the core assembly using header tabs and a compression gasket to complete the radiator core assembly. The radiator shall be compatible with commercial antifreeze solutions.</p> <p>There shall be a full steel frame around the entire radiator core assembly. The radiator core assembly shall be isolated within the steel frame by rubber inserts to enhance cooling system durability and reliability. The radiator shall be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly shall be isolated from the chassis frame rails with rubber isolators.</p> <p>The radiator assembly shall include an integral deaeration tank permanently mounted to the top of the radiator framework, with a readily accessible remote-mounted overflow tank. For visual coolant level inspection, the radiator shall have a built-in sight glass. The radiator shall be equipped with a 15 psi pressure relief cap.</p> <p>A drain port shall be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.</p>		

	Bidder Complies	
	Yes	No
<p>A heavy-duty fan shall draw in fresh, cool air through the radiator. Shields or baffles shall be provided to prevent recirculation of hot air to the inlet side of the radiator.</p> <p><u>COOLANT LINES</u></p> <p>Silicone hoses shall be used for all engine/heater coolant lines installed by the chassis manufacturer.</p> <p>Hose clamps shall be stainless steel "constant torque type" to prevent coolant leakage. They shall react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.</p> <p><u>FUEL TANK</u></p> <p>A 65 gallon fuel tank shall be provided and mounted at the rear of the chassis. The tank shall be constructed of 12-gauge, hot rolled steel. It shall be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank shall be mounted with stainless steel straps (no exception).</p> <p>A 0.75" drain plug shall be provided in a low point of the tank for drainage.</p> <p>A fill inlet shall be located on the left hand side of the body and be covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only."</p> <p>A 0.50" diameter vent shall be provided running from top of tank to just below fuel fill inlet.</p> <p>The tank shall meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.</p> <p>All fuel lines shall be provided as recommended by the engine manufacturer.</p> <p><u>DIESEL EXHAUST FLUID TANK</u></p> <p>A 4.5 gallon diesel exhaust fluid (DEF) tank shall be provided and mounted in the driver's side body forward of the rear axle.</p> <p>A 0.50" drain plug shall be provided in a low point of the tank for drainage.</p> <p>A fill inlet shall be located on the driver's side of the body and be covered with a hinged, spring loaded, polished stainless steel door that is marked "Diesel Exhaust Fluid Only".</p> <p>The tank shall meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing.</p> <p>The tank shall include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.</p>		

	Bidder Complies	
	Yes	No
<p><u>FUEL SHUTOFF</u> A fuel line shutoff valve shall be installed on both the inlet and outlet of the primary fuel filter.</p> <p><u>FUEL COOLER</u> An air to fuel cooler shall be installed in the engine fuel return line.</p> <p><u>FUEL SEPARATOR</u> The engine shall be equipped with an in-line spin-on fuel and water separator in addition to the engine fuel filters.</p> <p><u>TRANSMISSION</u> An electronic, torque converting, automatic transmission shall be provided.</p> <p>The transmission shall be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display shall indicate when service is due.</p> <p>Two (2) PTO openings shall be located on left side and top of converter housing (positions 8 o'clock and 1 o'clock).</p> <p>A transmission temperature gauge with red light and buzzer shall be installed on the cab instrument panel.</p> <p><u>TRANSMISSION SHIFTER</u> A six (6)-speed push button shift module shall be mounted to right of driver on console. Shift position indicator shall be indirectly lit for after dark operation.</p> <p>The transmission ratio shall be: 1st - 4.70 to 1.00, 2nd - 2.21 to 1.00, 3rd - 1.53 to 1.00, 4th - 1.00 to 1.00, 5th - 0.76 to 1.00, 6th - 0.67 to 1.00, R - 5.55 to 1.00.</p> <p><u>TRANSMISSION COOLER</u> A plate and fin transmission oil cooler shall be provided using engine coolant to control the transmission oil temperature.</p> <p><u>DRIVELINE</u> Drivelines shall be a heavy-duty metal tube and be equipped with universal joints.</p> <p>The shafts shall be dynamically balanced before installation.</p> <p>A splined slip joint shall be provided in each driveshaft.</p> <p><u>STEERING</u> Dual steering gears, with integral heavy-duty power steering, shall be provided. For reduced system temperatures, the power steering shall incorporate an air to oil cooler and a hydraulic</p>		

	Bidder Complies	
	Yes	No
<p>pump with integral pressure and flow control. All power steering lines shall have wire braded lines with crimped fittings.</p> <p>A tilt and telescopic steering column shall be provided to improve fit for a broader range of driver configurations.</p> <p><u>STEERING WHEEL</u></p> <p>The steering wheel shall be 18.00" in diameter, have tilting and telescoping capabilities, and a 4-spoke design.</p> <p><u>BUMPER</u></p> <p>A one (1) piece, stainless steel bumper shall be attached to the front of the frame.</p> <p>A 9.00" channel shall be mounted directly behind the bumper for additional strength.</p> <p>The bumper shall be extended 16.00" from front face of cab.</p> <p><u>GRAVEL PAN</u></p> <p>A gravel pan, constructed of bright aluminum treadplate, shall be furnished between the bumper and cab face. The gravel pan shall be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate.</p> <p><u>LIFT AND TOW MOUNTS</u></p> <p>Mounted to the frame extension shall be lift and tow mounts. The lift and tow mounts shall be designed and positioned to adapt to certain tow truck lift systems.</p> <p>The lift and tow mounts with eyes shall be painted the same color as the frame.</p> <p><u>TOW HOOKS</u></p> <p>No tow hooks are to be provided. This truck shall be equipped with a lift and tow package with integral tow eyes.</p> <p><u>CAB</u></p> <p>The cab shall be designed specifically for the fire service and shall be manufactured by the chassis builder.</p> <p>To provide quality at the source and single source customer support, the cab shall be built by the apparatus manufacturer in a facility located on the manufacturer's premises (no exception).</p> <p>For reasons of structural integrity and enhanced occupant protection, the cab shall be of heavy duty design, constructed to the following minimal standards.</p> <p>The cab shall have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts) and rear wall areas. The A-pillar</p>		

	Bidder Complies	
	Yes	No
<p>shall be constructed of 0.25" heavy wall extrusions joined by a solid A356-T6 aluminum joint casting. The B-pillar and C-pillar shall also be constructed from 0.25" heavy wall extrusions. The rear wall shall be constructed of two (2) 4.00" x 2.00" outer aluminum extrusions and two (2) 3.00" x 2.00" inner aluminum extrusions. All main vertical structural members shall run from the floor to 7.50" x 3.50" x 0.125" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.75" thick corner casting at each of the front corners of the roof assembly.</p> <p>The front of the cab shall be constructed of a 0.25" thick firewall, covered with a 0.125" front skin (for a total thickness of 0.38"), and reinforced with 24.50" wide x 10.00" deep x 0.50" thick supports on each side of the engine tunnel. The cross-cab support shall be welded to the A-pillar, 0.25" firewall, and engine tunnel, on the left and right sides.</p> <p>The cab floors shall be constructed of 0.1875" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.44" of structural material at the front floor area. The front floor area shall also be supported with three (3) 0.50" plates bolted together that also provides the mounting point for the cab lift. This tubing shall run from the front of the cab to the 0.1875" thick engine tunnel, creating the structure to support the forces created when lifting the cab.</p> <p>The cab shall be a full-tilt style. A 3-point cab mount system with rubber isolators shall improve ride quality by isolating chassis vibrations from the cab.</p> <p>The crew cab shall be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.</p> <p>The forward cab section shall have an overall height (from the cab roof to the ground) of approximately 102.00". The crew cab section shall have a 10.00" raised roof, with an overall cab height of approximately 112.00". The raised portion shall start at the most forward point of the B-pillar and continue rearward to the back of the cab. The overall height listed shall be calculated based on a truck configuration with the lowest suspension weight ratings, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension shall increase the overall height listed.</p> <p>The raised roof section of the crew cab shall have a 58.00" wide x 10.00" high square notch in the center section of the roof. This shall allow the aerial device to be bedded in the same location as a non-raised roof.</p> <p>The cab shall have an interior width of not less than 93.50". The driver and passenger seating positions shall have a minimum 24.00" clear width at knee level.</p>		

	Bidder Complies	
	Yes	No
<p>To reduce injuries to occupants in the seated positions, proper head clearance shall be provided. The floor-to-ceiling height inside the forward cab shall be no less than 60.25". The floor-to-ceiling height inside the crew cab shall be no less than 52.95" in the center position and 68.75" in the outboard positions.</p> <p>The crew cab shall measure a minimum of 57.50" from the rear wall to the backside of the engine tunnel (knee level) for optimal occupant legroom.</p> <p><u>INTERIOR CAB INSULATION</u></p> <p>The cab walls, ceiling and engine tunnel shall be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab shall be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling.</p> <p><u>FENDER LINERS</u></p> <p>Full-circular, aluminum inner fender liners in the wheel wells shall be provided.</p> <p><u>PANORAMIC WINDSHIELD</u></p> <p>A one (1)-piece, safety glass windshield with more than 2,802 square inches of clear viewing area shall be provided. The windshield shall be full width and shall provide the occupants with a panoramic view. The windshield shall consist of three (3) layers: the outer light, the middle safety laminate, and the inner light. The 0.114" thick outer light layer shall provide superior chip resistance. The middle safety laminate layer shall prevent the windshield glass pieces from detaching in the event of breakage. The inner light shall provide yet another chip resistant layer. The cab windshield shall be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern shall be applied on the outside perimeter of the windshield for a finished automotive appearance.</p> <p><u>WINDSHIELD WIPERS</u></p> <p>Three (3) electric windshield wipers with a washer, in conformance with FMVSS and SAE requirements, shall be provided. The wiper blades shall be 21.65" long and together shall clear a minimum of 1,783 square inches of the windshield for maximum visibility in inclement weather.</p> <p>The windshield washer fluid reservoir shall be located at the front of the vehicle and be accessible through the access hood for simple maintenance.</p> <p><u>FAST SERVICE ACCESS FRONT TILT HOOD</u></p> <p>A full-width access hood shall be provided for convenient access to engine coolant, steering fluid, wiper fluid, cab lift controls, headlight power modules, and ember separator. The hood shall also provide complete access to the windshield wiper motor and components. The hood shall be contoured to provide a sleek, automotive appearance. The hood shall be constructed of two (2) fiberglass panels bonded together and shall include reinforcing ribs for structural integrity. The hood shall include air cylinders to hold the hood in open and closed positions, and</p>		

	Bidder Complies	
	Yes	No
<p>a heavy duty latch system that shall meet FMVSS 113 (Hood Latch System). The spring-loaded hood latch shall be located at the center of the hood with a double-action release lever located behind the upper grille. The two (2)-step release requires the lever first be pulled to the driver side until the hood releases from the first latch (primary latch) then to the passenger side to fully release the hood (secondary latch).</p> <p><u>ENGINE TUNNEL</u></p> <p>To provide structural strength, the engine tunnel sidewalls shall be constructed of .50" aluminum plate that is welded to both the .25" firewall and .38" heavy wall extrusion under the crew cab floor. To maximize occupant space, the top edges shall be tapered.</p> <p>The engine tunnel shall be insulated on both sides for thermal and acoustic absorption. The underside of the tunnel shall be covered with 1.00" thick polyether foam that is reinforced with an aluminized face. Thermal rating for this insulation shall be -40 degrees Fahrenheit to 300 degrees Fahrenheit. The insulation shall keep noise (dBA) levels at or lower than the specifications in the current edition of the NFPA 1901 standards.</p> <p><u>CAB REAR WALL EXTERIOR COVERING</u></p> <p>The exterior surface of the rear wall of the cab shall be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.</p> <p><u>CAB LIFT</u></p> <p>A hydraulic cab lift system shall be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves. The hydraulic pump shall have a backup manual override, for use in the event of an electrical failure.</p> <p>The cab lift controls shall be located at the driver side front of the cab, easily accessible under the full width front access hood. The controls shall include a permanently mounted raise/lower switch. For enhanced visibility during cab tilt operations, a remote control tether with on/off switch shall be supplied on a coiled cord that shall extend from 2.00' (coiled) to 6.00' (extended).</p> <p>The cab shall be capable of tilting 42 degrees and 80 degrees with crane assist to accommodate engine maintenance and removal. The cab pivots shall be located 46.00" apart to provide stability while tilting the cab.</p> <p>The rear of the cab shall be locked down by a two (2)-point, automatic, hydraulic, double hook mechanism that fully engages after the cab has been lowered (self-locking). The dual 2.25" diameter hydraulic cylinders shall be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position.</p>		

	Bidder Complies	
	Yes	No
<p>For increased safety, a redundant mechanical stay arm shall be provided that must be manually put in place on the driver side between the chassis and cab frame when cab is in the raised position. This device shall be manually stowed to its original position before the cab can be lowered.</p> <p><u>Cab Lift Interlock</u> The cab lift safety system shall be interlocked to the parking brake. The cab tilt mechanism shall be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism shall be disabled.</p> <p><u>GRILLE</u> A bright finished aluminum mesh grille screen, inserted behind a formed bright finished grille surround, shall be provided on the front center of the cab, and shall serve as an air intake to the radiator.</p> <p><u>FRONT CAB TRIM</u> A 10.00" band of 22 gauge patterned stainless steel trim shall be installed across the front of the cab, from door hinge to door hinge. The trim band shall be centered on the head lights and applied with two (2)-sided tape. A 0.625" self adhesive trim strip shall be applied around the perimeter of the trim band.</p> <p>There shall be polished stainless steel corner covers provided over the painted cab corner where the cab turn signals are located.</p> <p><u>SIDE OF CAB MOLDING</u> Chrome molding shall be provided on both sides of cab.</p> <p><u>MIRRORS</u> A dual vision, motorized, west coast style mirror, with chrome finish, shall be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass shall be heated and adjustable with remote control within reach of the driver.</p> <p><u>CAB DOORS</u> The forward cab and crew cab doors shall be the half-height style door. To enhance entry and egress to the cab, the forward cab doors shall be a minimum of 43.59" wide x 64.71" high. The crew cab doors shall measure a minimum of 37.87" wide x 73.75" high.</p> <p>The forward cab and crew cab doors shall be constructed of extruded aluminum with a nominal material thickness of 0.125". The exterior door skins shall be constructed from 0.090" aluminum.</p> <p>The forward cab door windows shall include a 7.50" high x 10.00" wide drop area at the front to enhance visibility.</p>		

	Bidder Complies	
	Yes	No
<p>A customized, vertical, pull-down type door handle shall be provided on the exterior of each cab door. The exterior handle shall be designed specifically for the fire service to prevent accidental activation, and shall provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands. Each door shall also be provided with an interior flush, open style paddle handle that shall be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles shall provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands.</p> <p>The cab doors shall be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The locks shall be capable of activating when the doors are open or closed. The doors shall remain locked if locks are activated when the doors are opened, then closed.</p> <p>A full length, heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11 gauge leaf shall be provided on all cab doors. There shall be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.</p> <p>A chrome grab handle shall be provided on the inside of each cab and crew cab door.</p> <p>The cab steps at each cab door location shall be located below the cab doors and shall be exposed to the exterior of the cab.</p> <p><u>CAB DOOR PANELS</u></p> <p>The inner cab door panels shall be constructed out of brushed stainless steel. The cab door panels shall be removable.</p> <p><u>RECESSED POCKET WITH ELASTIC COVER</u></p> <p>To provide organized storage (clutter control) in the cab for miscellaneous equipment, the cab interior shall be provided with recessed storage pockets. The pockets shall be 5.63" wide x 2.00" high x 4.00" deep. The pockets shall be provided with a perforated elastic material cover to secure the equipment in the pocket. The pockets shall be installed in all available mounting locations of the overhead console.</p> <p><u>ELECTRIC WINDOW CONTROLS</u></p> <p>Each cab entry door shall be equipped with an electrically operated tempered glass window. A window control panel shall be located on the door panel within easy reach of the respective occupant. Each switch shall allow intermittent or auto down operation for ease of use. Auto down operation shall be actuated by holding the window down switch for approximately 1 second. The driver control panel shall contain a control switch for each cab door's window. All other door control panels shall contain a single switch to operate the window within that door.</p>		

	Bidder Complies	
	Yes	No
<p>The window switches shall be connected directly to the battery power. This allows the windows to be raised and lowered when the battery switch is in the off position.</p> <p><u>DUAL STEPS</u></p> <p>A dual step shall be provided below each cab and crew cab door. The steps shall be designed with a grip pattern punched into bright aluminum treadplate material providing support, slip resistance, and drainage. The steps shall be a bolt-on design and provide a 24.00" wide x 7.00" deep stepping surface. The step design raises the middle step higher and closer to the cab floor, resulting in a 12.00" distance from the step to cab floor in the cab and a 13.50" distance from the step to cab floor in the crew cab. Stepping distances from the ground to first step shall be 16.50" and from first step to middle step shall be 12.00".</p> <p>The first step shall be lit by a 12 volt DC LED light provided on the step.</p> <p><u>STEP LIGHTS</u></p> <p>For reduced overall maintenance costs compared to incandescent lighting, there shall be four (4) white LED step lights provided. The lights shall be installed at each cab and crew cab door, one (1) per step. The lights shall be located in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep.</p> <p>In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15.00" x 15.00" square placed 10.00" below the light and a minimum of 1.5 fc covering an entire 30.00" x 30.00" square at the same 10.00" distance below the light.</p> <p>The lights shall be activated when the adjacent door is opened.</p> <p><u>FENDER CROWNS</u></p> <p>Stainless steel fender crowns shall be installed at the cab wheel openings.</p> <p><u>CREW CAB WINDOWS</u></p> <p>One (1) fixed window with tinted glass shall be provided on each side of the cab, to the rear of the front cab door. The windows shall be sized to enhance light penetration into the cab interior. The windows shall measure 20.00" wide x 20.50" high.</p> <p><u>WINDOWS INTERIOR TRIM</u></p> <p>For improved aesthetics, the cab side windows shall include a vacuum formed ABS interior trim panel.</p> <p><u>WINDOWS, REAR</u></p> <p>The rear wall of the crew cab shall have two (2) windows, each being 11.25" wide x 18.00" high.</p>		

	Bidder Complies	
	Yes	No
<p><u>WINDOW INTERIOR TRIM</u></p> <p>For improved aesthetics, the cab rear wall windows shall include a vacuum formed ABS interior trim panel.</p> <p><u>CAB ROOF DRIP RAIL</u></p> <p>For enhanced protection from inclement weather, a drip rail shall be furnished on the sides of the cab. The drip rail shall be constructed of bright polished extruded aluminum, and be bonded to the sides of the cab. The drip rail shall extend the full length of the cab roof.</p> <p><u>CAB INTERIOR</u></p> <p>With safety as the primary objective, the wrap-around style cab instrument panel shall be designed with unobstructed visibility to instrumentation. The dash layout shall provide the driver with a quick reference to gauges that allows more time to focus on the road.</p> <p>The center console shall be a high impact ABS polymer and shall be easily removable for access to the defroster. The center console shall include louvers strategically located for optimal air flow and defrost capability to the windshield.</p> <p>The passenger side dashboard shall be constructed of painted aluminum for durability and low maintenance. For enhanced versatility, the passenger side dash shall include a flat working surface.</p> <p>To provide optional (service friendly) control panels, switches and storage modules, a painted aluminum overhead console shall also be provided.</p> <p>To complete the cab front interior design, painted aluminum modesty panels shall be provided under the dash on both sides of the cab. The driver side modesty panel shall provide mounting for the battery switch and diagnostic connectors, while the passenger side modesty panel provides a glove box, and ground access to the main electrical distribution panel via quick quarter turn fasteners.</p> <p>To provide a deluxe automotive interior, the engine tunnel shall be covered by leather grain vinyl that is resistant to oil, grease, and mildew. For durability and ease of maintenance, the cab interior side walls and rear wall shall be painted aluminum.</p> <p>The headliner shall be installed in both forward and rear cab sections. The headliner panel shall be a composition of an aluminum panel covered with a sound barrier and upholstery.</p> <p>The cab structure shall include designated raceways for electrical harness routing from the front of the cab to the rear upper portion of the cab. Raceways shall be extruded in the forward door frame, floor, walls and overhead in the area where the walls meet the ceiling. The raceways located in the floor shall be covered by aluminum extrusion, while the vertical and overhead raceways shall be covered by painted aluminum covers. The raceways shall improve harness</p>		

	Bidder Complies	
	Yes	No
<p>integrity by providing a continuous harness path that eliminates wire chafing and abrasion associated with exposed wiring or routing through drilled metal holes. Harnesses shall be laid in place. Routing through holes in tubing shall not be accepted due to chaffing that installation causes.</p> <p><u>CAB INTERIOR UPHOLSTERY</u> The cab interior upholstery shall be dark silver gray. All cab interior materials shall meet FMVSS 302 (flammability of interior materials).</p> <p><u>CAB INTERIOR PAINT</u> The cab interior metal surfaces shall be painted fire smoke gray, vinyl texture paint.</p> <p><u>CAB FLOOR</u> The cab and crew cab floor areas shall be covered with floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler.</p> <p>The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer a superior grip surface. Additionally, the material has a 0.25" thick closed cell foam (no water absorption) which offers a sound dampening material for reducing sound levels.</p> <p><u>CAB DEFROSTER</u> To provide maximum defrost and heating performance, a 54,961 BTU heater-defroster unit with 558 SCFM of air flow shall be provided inside the cab. The defroster unit shall be strategically located under the center forward portion of the instrument panel. For easy access, a removable metal cover shall be installed over the defroster unit. The defroster shall include an integral aluminum frame air filter, high performance dual scroll blowers, and ducts designed to provide maximum defrosting capabilities for the 1-piece windshield. The defroster ventilation shall be built into the design of the cab dash instrument panel and shall be easily removable for maintenance. The defroster shall be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system shall meet or exceed SAE J382 requirements.</p> <p><u>CAB/CREW CAB HEATER</u> Two (2) 36,702 BTU auxiliary heaters with 276 SCFM (each unit) of air flow shall be provided inside the crew cab, one (1) in each outboard rear facing seat riser. The heaters shall include high performance dual scroll blowers, one (1) for each unit. Outlets for the heaters shall be located below each rear facing seat riser and below the fronts of the driver and passenger seats, for efficient airflow. An extruded aluminum plenum shall be incorporated in the cab structure that shall transfer heat to the forward cab seating positions.</p>		

	Bidder Complies	
	Yes	No
<p>The heater/defroster and crew cab heaters shall be controlled by an integral electronic control panel. The heater control panel shall allow the driver to control heat flow to the front and rear independently. The control panel shall include variable adjustment for temperature and fan control, and be conveniently located on the dash in clear view of the driver. The control panel shall include highly visible, progressive LED indicators for both fan speed and temperature.</p> <p><u>AIR CONDITIONING</u></p> <p>A high-performance, customized air conditioning system shall be furnished inside the cab and crew cab. A 13.10 cubic inch compressor shall be installed on the engine.</p> <p>A roof-mounted condenser with a 63,000 BTU output that meets and exceeds the performance specification shall be installed on the cab roof. Mounting the condenser below the cab or body would reduce the performance of the system and shall not be acceptable. The condenser cover and mounting legs to be painted white as provided by manufacturer.</p> <p>The evaporator unit shall be installed in the cab, located in the center of the cab ceiling over the engine tunnel. The evaporator shall include two (2) high performance cores and plenums with multiple outlets, one (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.</p> <p>There shall be a hinge on the forward edge of the filter cover and two (2) quarter turn fasteners with a knob on the rear edge to allow easy access.</p> <p>The evaporator unit shall have a 49,000 BTU rating that meets and exceeds the performance specifications.</p> <p>Adjustable air outlets shall be strategically located on the evaporator cover per the following:</p> <ul style="list-style-type: none"> • Four (4) shall be directed towards the drivers location • Four (4) shall be directed towards the officers location • Eight (8) shall be directed towards crew cab area <p>The air conditioner refrigerant shall be R-134A and shall be installed by a certified technician.</p> <p>The air conditioner shall be controlled by dual zone integral electronic control panels for the heater, defroster and air conditioner. The cab control panel shall be located in the center console. For ease of operation, the control panels shall include variable adjustment for temperature and fan control.</p> <p><u>INTERIOR CAB INSULATION</u></p> <p>The cab walls, ceiling, and engine tunnel shall be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab shall be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling. Headliners</p>		

	Bidder Complies	
	Yes	No
<p>shall be constructed from a 0.20" high density polyethylene corrugated material. Each headliner shall be wrapped with a 0.25" thick foil faced poly damp low emissivity foam insulation barrier for acoustic and thermal control. For ease of installation and removal, all headliners shall be held in place by a dual lock fastening system. Headliner installation requiring removal of mechanical fasteners shall not be acceptable.</p> <p>Designed for maximum sound absorption and thermal insulation, the rear cab wall shall be insulated with 1.50" thick open cell acoustical foam. The thermal protection of the foam shall provide an R-value of four (4) per 1.00" thickness.</p> <p><u>SUN VISORS</u></p> <p>Two (2) smoked polycarbonate sun visors provided. The sun visors shall be located above the windshield with one (1) mounted on each side of the cab.</p> <p>There shall be no retention bracket provided to help secure each sun visor in the stowed position.</p> <p><u>GRAB HANDLE</u></p> <p>A black rubber covered grab handle shall be mounted on the door post of the driver side cab door to assist in entering the cab. The grab handle shall be securely mounted to the post area between the door and windshield.</p> <p>A long rubber grab handle shall be mounted on the dash board in front of the officer.</p> <p><u>ENGINE COMPARTMENT LIGHTS</u></p> <p>There shall be two (2) 12 volt DC, 3.00" white LED light(s) with chrome flange kit(s) installed under the cab to be used as engine compartment illumination.</p> <p>These light(s) shall be activated automatically when the cab is raised.</p> <p><u>ACCESS TO ENGINE DIPSTICKS</u></p> <p>For access to the engine oil and transmission fluid dipsticks, there shall be a door on the engine tunnel, inside the crew cab. The door shall be on the rear wall of the engine tunnel, on the vertical surface. The door shall be 17.75" wide x 12.75" high and be flush with the wall of the engine tunnel.</p> <p>The engine oil dipstick shall allow for checking only. The transmission dipstick shall allow for both checking and filling. An additional port shall be provided for filling the engine oil.</p> <p>The door shall have a rubber seal for thermal and acoustic insulation. One (1) flush latch shall be provided on the access door.</p>		

Bidder Complies	
Yes	No

CAB SAFETY SYSTEM

The cab shall be provided with a safety system designed to protect occupants in the event of a side roll or frontal impact, and shall include the following:

- A supplemental restraint system (SRS) sensor shall be installed on a structural cab member behind the instrument panel. The SRS sensor shall perform real time diagnostics of all critical subsystems and shall record sensory inputs immediately before and during a side roll or frontal impact event.
- A slave SRS sensor shall be installed in the cab to provide capacity for eight (8) crew cab seating positions.
- A fault-indicating light shall be provided on the vehicle's instrument panel allowing the driver to monitor the operational status of the SRS system.
- A driver side front air bag shall be mounted in the steering wheel and shall be designed to protect the head and upper torso of the occupant, when used in combination with the 3-point seat belt.
- A passenger side knee bolster air bag shall be mounted in the modesty panel below the dash panel and shall be designed to protect the legs of the occupant, when used in combination with the 3-point seat belt.
- Air curtains shall be provided in the outboard bolster of outboard seat backs to provide a cushion between occupant and the cab wall.
- Suspension seats shall be provided with devices to retract them to the lowest travel position during a side roll or frontal impact event.
- Seat belts shall be provided with pre-tensioners to remove slack from the seat belt during a side roll or frontal impact event.

FRONTAL IMPACT PROTECTION

The SRS system shall provide protection during a frontal or oblique impact event. The system shall activate when the vehicle decelerates at a predetermined G force known to cause injury to the occupants. The cab and chassis shall have been subjected, via third party test facility, to a crash impact during frontal and oblique impact testing. Testing included all major chassis and cab components such as mounting straps for fuel and air tanks, suspension mounts, front suspension components, rear suspensions components, frame rail cross members, engine and transmission and their mounts, pump house and mounts, frame extensions and body mounts. The testing provided configuration specific information used to optimize the timing for firing the safety restraint system. The sensor shall activate the pyrotechnic devices when the correct crash algorithm, wave form, is detected (no exception).

The SRS system shall deploy the following components in the event of a frontal or oblique impact event:

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> • Driver side front air bag • Passenger side knee bolster air bag • Air curtains mounted in the outboard bolster of outboard seat backs • Suspension seats shall be retracted to the lowest travel position • Seat belts shall be pre-tensioned to firmly hold the occupant in place <p><u>SIDE ROLL PROTECTION</u></p> <p>The SRS system shall provide protection during a fast or slow 90 degree roll to the side, in which the vehicle comes to rest on its side. The system shall analyze the vehicle's angle and rate of roll to determine the optimal activation of the advanced occupant restraints.</p> <p>The SRS system shall deploy the following components in the event of a side roll:</p> <ul style="list-style-type: none"> • Air curtains mounted in the outboard bolster of outboard seat backs • Suspension seats shall be retracted to the lowest travel position • Seat belts shall be pre-tensioned to firmly hold the occupant in place <p><u>SEATING CAPACITY</u></p> <p>The seating capacity in the cab shall be six (6).</p> <p><u>DRIVER SEAT</u></p> <p>A cam action seat with air suspension shall be provided in the cab for the driver. For increased convenience, the seat shall include electric controls to adjust the rake, height and horizontal position. Electric controls shall be located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat shall be furnished with an adjustable reclining back. The seat back shall be a high back style with manual lumbar adjustment lever, for lower back support, and shall include minimum 7.50" deep side bolster pads for maximum support. For optimal comfort, the seat shall be provided with dual density foam cushions designed with EVC (elastomeric vibration control).</p> <p>The seat shall include the following features incorporated into the side roll protection system:</p> <ul style="list-style-type: none"> • Side air curtain shall be mounted integral to the outboard bolster of the seat back. The air curtain shall be covered by a decorative panel when in the stowed position. • A suspension seat safety system shall be included. When activated, this system shall pretension the seat belt and retract the seat to its lowest travel position. <p>The seat shall be furnished with a 3-point, shoulder type seat belt. The seat belt shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.</p>		

Bidder Complies	
Yes	No

OFFICER SEAT

A cam action seat with air suspension shall be provided in the cab for the passenger. For increased convenience, the seat shall include a manual control to adjust the horizontal position. The manual horizontal control shall be a towel-bar style located below the forward part of the seat cushion. For optimal comfort, the seat shall be provided with dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat shall be equipped with seat belt sensors in the seat cushion and belt receptacle that shall activate an alarm indicating a seat is occupied but not belted.

The seat back shall be an SCBA back style with 7.5 degree fixed recline angle, and shall include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity shall be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat shall include the following features incorporated into the side roll protection system:

- Side air curtain shall be mounted integral to the outboard bolster of the seat back. The air curtain shall be covered by a decorative panel when in the stowed position.
- A suspension seat safety system shall be included. When activated, this system shall pretension the seat belt, then retract the seat to its lowest travel position.

The seat shall be furnished with a 3-point, shoulder type seat belt. The seat belt shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.

RADIO COMPARTMENT

A compartment for the radio amplifier shall be located under the center forward facing seats in the crew cab. A drop-down door with a chrome plated lift and turn latch shall be provided for access. The compartment shall be constructed of smooth aluminum and painted to match the cab interior.

REAR FACING DRIVER SIDE OUTBOARD SEAT

There shall be one (1) rear facing seat provided at the driver side outboard position in the crew cab. For optimal comfort, the seat shall be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat shall be equipped with seat belt sensors in the seat cushion and belt receptacle. It shall activate an alarm indicating a seat is occupied but not buckled.

The seat back shall be an SCBA back style with 7.5 degree fixed recline angle, and shall include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity shall be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA

	Bidder Complies	
	Yes	No
<p>cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-bolting it in the desired location.</p> <p>The seat shall include the following features incorporated into the side roll protection system:</p> <ul style="list-style-type: none"> • Side air curtain shall be mounted integral to the outboard bolster of the seat back. The air curtain shall be covered by a decorative panel when in the stowed position. • A seat safety system shall be included. When activated, this system shall pretension the seat belt around the occupant to firmly hold them in place in the event of a side roll. <p>The seat shall be furnished with a 3-point, shoulder type seat belt. The seat belt shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.</p> <p><u>REAR FACING PASSENGER SIDE OUTBOARD SEAT</u></p> <p>There shall be one (1) rear facing seat provided at the passenger side outboard position in the crew cab. For optimal comfort, the seat shall be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat shall be equipped with seat belt sensors in the seat cushion and belt receptacle that shall activate an alarm indicating a seat is occupied but not buckled. The seat back shall be an SCBA back style with 7.5 degree fixed recline angle, and shall include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity shall be adjustable from front to rear in 1.00" increments to accommodate different sized SCBA cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-bolting it in the desired location.</p> <p>The seat shall include the following features incorporated into the side roll protection system:</p> <ul style="list-style-type: none"> • Side air curtain shall be mounted integral to the outboard bolster of the seat back. The air curtain shall be covered by a decorative panel when in the stowed position. • A seat safety system shall be included. When activated, this system shall pretension the seat belt and firmly hold the occupant in the event of a side roll. <p>The seat shall be furnished with a 3-point, shoulder type seat belt. The seat belt shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.</p> <p><u>FORWARD FACING CENTER SEATS</u></p> <p>There shall be two (2) forward facing seats provided at the center position in the crew cab. For optimal comfort, the seats shall be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seats shall be equipped with seat belt sensors in the seat cushion and belt receptacle that shall activate an alarm indicating a seat is occupied but not buckled. The seat backs shall be an SCBA back style with</p>		

	Bidder Complies	
	Yes	No
<p>7.5 degree fixed recline angle, and shall include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity shall be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-bolting it in the desired location.</p> <p>The seats shall include the following feature incorporated into the side roll protection system:</p> <ul style="list-style-type: none"> • A seat safety system shall be included. When activated, this system shall pretension the seat belts around the occupants to firmly hold them in place in the event of a side roll. <p>The seats shall be furnished with 3-point, shoulder type seat belts. The seat belts shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.</p> <p><u>SEAT UPHOLSTERY</u> All seat upholstery shall be gray woven with black water resistant material.</p> <p><u>AIR BOTTLE HOLDERS</u> All SCBA type seats in the cab shall have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket shall include an automatic spring clamp that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp shall constrain the SCBA bottle in the seat and shall exceed the NFPA standard of 9G. Bracket designs with manual restraints (belts, straps, buckles) that could be inadvertently left unlocked and allow the SCBA to move freely within the cab during an accident, shall not be acceptable.</p> <p>There shall be a quantity of five (5) SCBA brackets.</p> <p><u>SEAT BELTS</u> All seating positions in the cab and crew cab shall have red seat belts.</p> <p>To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length shall meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards.</p> <p>The 3-point shoulder type seat belts shall also include a D-loop assembly to the shoulder belt system. This feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.</p>		

	Bidder Complies	
	Yes	No
<p><u>SHOULDER HARNESS HEIGHT ADJUSTMENT</u></p> <p>All seating positions furnished with 3-point shoulder type seat belts shall include a height adjustment. This adjustment shall optimize the belts effectiveness and comfort for the seated firefighter.</p> <p>A total of six (6) seating positions shall have the adjustable shoulder harness.</p> <p><u>HELMET STORAGE PROVIDED BY FIRE DEPARTMENT</u></p> <p>NFPA 1901, 2016 edition, section 14.1.7.4.1 requires a location for helmet storage be provided.</p> <p>There is no helmet storage on the apparatus as manufactured. The fire department shall provide a location for storage of helmets.</p> <p><u>CAB DOME LIGHTS</u></p> <p>There shall be four (4) dual LED dome lights with black bezels provided. Two (2) lights shall be mounted above the inside shoulder of the driver and officer and two (2) lights shall be installed and located, one (1) on each side of the crew cab.</p> <p>The color of the LED's shall be red and white.</p> <p>The white LED's shall be controlled by the door switches and the lens switch.</p> <p>The color LED's shall be controlled by the lens switch.</p> <p>In order to ensure exceptional illumination, each white LED dome light shall provide a minimum of 10.1 foot-candles (fc) covering an entire 20.00" x 20.00" square seating position when mounted 40.00" above the seat.</p> <p><u>OVERHEAD MAP LIGHTS</u></p> <p>There shall be two (2) white halogen, round adjustable map lights installed in the cab:</p> <ul style="list-style-type: none"> • One (1) overhead in front of the driving position. • One (1) overhead in front of the passenger's position. <p>Each light shall include a switch on the light housing.</p> <p>The light switches shall be connected directly to the battery switched power.</p> <p><u>PORTABLE HAND LIGHTS, PROVIDED BY FIRE DEPARTMENT</u></p> <p>NFPA 1901, 2016 edition, section 5.9.4 requires two portable hand lights mounted in brackets fastened to the apparatus.</p> <p>The hand lights are not on the apparatus as manufactured. The fire department shall provide and mount these hand lights.</p>		

Bidder Complies	
Yes	No

CAB INSTRUMENTATION

The cab instrument panel shall consist of gauges, an LCD display, telltale indicator lights, alarms, control switches, and a diagnostic panel. The function of instrument panel controls and switches shall be identified by a label adjacent to each item. Actuation of the headlight switch shall illuminate the labels in low light conditions. Telltale indicator lamps shall not be illuminated unless necessary. The cab instruments and controls shall be conveniently located within the forward cab section directly forward of the driver. Gauge and switch panels shall be designed to be removable for ease of service and low cost of ownership.

GAUGES

The gauge panel shall include the following ten (10) ivory gauges with chrome bezels to monitor vehicle performance:

- Voltmeter gauge (Volts)

Low volts (11.8 VDC)

Amber indicator on gauge assembly with alarm

High volts (15 VDC)

Amber indicator on gauge assembly with alarm

Very low volts (11.3 VDC)

Amber indicator on gauge assembly with alarm

Very high volts (16 VDC)

Amber indicator on gauge assembly with alarm

- Tachometer (RPM)

- Speedometer (Primary (outside) MPH, Secondary (inside) Km/H)

- Fuel level gauge (Empty - Full in fractions)

Low fuel (1/8 full)

Amber indicator on gauge assembly with alarm

Very low fuel (1/32) fuel

Amber indicator on gauge assembly with alarm

	Bidder Complies	
	Yes	No
<p>- Engine oil pressure gauge (PSI)</p> <p> Low oil pressure to activate engine warning lights and alarms</p> <p> Red indicator on gauge assembly with alarm</p> <p>- Front air pressure gauge (PSI)</p> <p> Low air pressure to activate warning lights and alarm</p> <p> Red indicator on gauge assembly with alarm</p> <p>- Rear air pressure gauge (PSI)</p> <p> Low air pressure to activate warning lights and alarm</p> <p> Red indicator on gauge assembly with alarm</p> <p>- Transmission oil temperature gauge (Fahrenheit)</p> <p> High transmission oil temperature activates warning lights and alarm</p> <p> Amber indicator on gauge assembly with alarm</p> <p>- Engine coolant temperature gauge (Fahrenheit)</p> <p> High engine temperature activates an engine warning light and alarm</p> <p> Red indicator on gauge assembly with alarm</p> <p>- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions)</p> <p> Low fluid (1/8 full)</p> <p> Amber indicator on gauge assembly with alarm</p> <p>All gauges and gauge indicators shall perform prove out at initial power-up to ensure proper performance.</p> <p><u>INDICATOR LAMPS</u></p> <p>To promote safety, the following telltale indicator lamps shall be integral to the gauge assembly and are located above and below the center gauges. The indicator lamps shall be "dead-front" design that is only visible when active. The colored indicator lights shall have descriptive text or symbols.</p> <p>The following amber telltale lamps shall be present:</p>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> - Low coolant - Trac cntl (traction control) (where applicable) - Check engine - Check trans (check transmission) - Aux brake overheat (Auxiliary brake overheat) - Air rest (air restriction) - Caution (triangle symbol) - Water in fuel - DPF (engine diesel particulate filter regeneration) - Trailer ABS (where applicable) - Wait to start (where applicable) - HET (engine high exhaust temperature) (where applicable) - ABS (antilock brake system) - MIL (engine emissions system malfunction indicator lamp) (where applicable) - SRS (supplemental restraint system) fault (where applicable) - DEF (low diesel exhaust fluid level) <p>The following red telltale lamps shall be present:</p> <ul style="list-style-type: none"> - Warning (stop sign symbol) - Seat belt - Parking brake - Stop engine - Rack down <p>The following green telltale lamps shall be provided:</p> <ul style="list-style-type: none"> - Left turn 		

	Bidder Complies	
	Yes	No
<p>- Right turn</p> <p>- Battery on</p> <p>The following blue telltale lamp shall be provided:</p> <p>-High beam</p> <p><u>ALARMS</u></p> <p>Audible steady tone warning alarm: A steady audible tone alarm shall be provided whenever a warning message is present.</p> <p>Audible pulsing tone caution alarm: A pulsing audible tone alarm (chime/chirp) shall be provided whenever a caution message is present without a warning message being present.</p> <p>Alarm silence: Any active audible alarm shall be able to be silenced by holding the ignition switch at the top position for three (3) to five (5) seconds. For improved safety, silenced audible alarms shall intermittently chirp every 30 seconds until the alarm condition no longer exists. The intermittent chirp shall act as a reminder to the operator that a caution or warning condition still exists. Any new warning or caution condition shall enable the steady or pulsing tones respectively.</p> <p><u>INDICATOR LAMP AND ALARM PROVE-OUT</u></p> <p>Telltale indicators and alarms shall perform prove-out at initial power-up to ensure proper performance.</p> <p><u>CONTROL SWITCHES</u></p> <p>For ease of use, the following controls shall be provided immediately adjacent to the cab instrument panel within easy reach of the driver.</p> <p>Emergency master switch: A molded plastic push button switch with integral indicator lamp shall be provided. Pressing the switch shall activate emergency response lights and siren control. A green lamp on the switch provides indication that the emergency master mode is active. Pressing the switch again disables the emergency master mode.</p> <p>Headlight / Parking light switch: A three (3)-position maintained rocker switch shall be provided. The first switch position shall deactivate all parking lights and the headlights. The second switch position shall activate the parking lights. The third switch position shall activate the headlights.</p> <p>Panel backlighting intensity control switch: A three (3)-position momentary rocker switch shall be provided. The first switch position decreases the panel backlighting intensity to a minimum level as the switch is held. The second switch position is the default position that does not affect</p>		

	Bidder Complies	
	Yes	No
<p>the backlighting intensity. The third switch position increases the panel backlighting intensity to a maximum level as the switch is held.</p> <p>The following standard controls shall be integral to the gauge assembly and are located below the right hand gauges. All switches have backlit labels for low light applications.</p> <p>High idle engagement switch: A two (2)-position momentary rocker switch with integral indicator lamp shall be provided. The first switch position is the default switch position. The second switch position shall activate and deactivate the high idle function when pressed and released. The "Ok To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch shall indicate when the high idle function is engaged.</p> <p>"Ok To Engage High Idle" indicator lamp: A green indicator light shall be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.</p> <p>The following standard controls shall be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches shall have backlit labels for low light applications.</p> <p>Ignition switch: A three (3)-position maintained/momentary rocker switch shall be provided. The first switch position shall deactivate vehicle ignition. The second switch position shall activate vehicle ignition. The third momentary position shall disable the Command Zone audible alarm if held for three (3) to five (5) seconds. A green indicator lamp shall be activated with vehicle ignition.</p> <p>Engine start switch: A two (2)-position momentary rocker switch shall be provided. The first switch position is the default switch position. The second switch position shall activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.</p> <p>4-way hazard switch: A two (2)-position maintained rocker switch shall be provided. The first switch position shall deactivate the 4-way hazard switch function. The second switch position shall activate the 4-way hazard function. The switch actuator shall be red and includes the international 4-way hazard symbol.</p> <p>Heater, defroster, and optional air conditioning control panel: A control panel with membrane switches shall be provided to control heater/defroster temperature and heater, defroster, and air conditioning fan speeds. A green LED status bar shall indicate the relative temperature and fan speed settings.</p> <p>Turn signal arm: A self-canceling turn signal with high beam headlight and windshield wiper/washer controls shall be provided. The windshield wiper control shall have high, low, and intermittent modes.</p>		

	Bidder Complies	
	Yes	No
<p>Parking brake control: An air actuated push/pull park brake control valve shall be provided.</p> <p>Chassis horn control: Activation of the chassis horn control shall be provided through the center of the steering wheel.</p> <p><u>CUSTOM SWITCH PANELS</u></p> <p>The design of cab instrumentation shall allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There shall be positions for up to four (4) switch panels in the overhead console on the driver's side, up to four (4) switch panels in the engine tunnel console facing the driver, up to four (4) switch panels in the overhead console on the officer's side and up to two (2) switch panels in the engine tunnel console facing the officer. All switches shall have backlit labels for low light applications.</p> <p><u>DIAGNOSTIC PANEL</u></p> <p>A diagnostic panel shall be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel shall allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches shall allow ABS systems to provide blink codes should a problem exist.</p> <p>The diagnostic panel shall include the following:</p> <ul style="list-style-type: none"> - Engine diagnostic port - Transmission diagnostic port - ABS diagnostic port - SRS diagnostic port (where applicable) - Command Zone USB diagnostic port - ABS diagnostic switch (blink codes flashed on ABS telltale indicator) - Diesel particulate filter regeneration switch (where applicable) - Diesel particulate filter regeneration inhibit switch (where applicable) <p><u>CAB LCD DISPLAY</u></p> <p>A digital four (4) row by 20 character dot matrix display shall be integral to the gauge panel. The display shall be capable of showing simple graphical images as well as text. The display shall be split into three (3) sections. Each section shall have a dedicated function. The upper left section shall display the outside ambient temperature.</p>		

	Bidder Complies	
	Yes	No
<p>The upper right section shall display, along with other configuration specific information:</p> <ul style="list-style-type: none"> - Odometer - Trip mileage - PTO hours - Fuel consumption - Engine hours <p>The bottom section shall display INFO, CAUTION, and WARNING messages. Text messages shall automatically activate to describe the cause of an audible caution or warning alarm. The LCD shall be capable of displaying multiple text messages should more than one caution or warning condition exist.</p> <p><u>AIR RESTRICTION INDICATOR</u></p> <p>A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm shall be provided.</p> <p><u>"DO NOT MOVE APPARATUS" INDICATOR</u></p> <p>A flashing red indicator light, located in the driving compartment, shall be illuminated automatically per the current NFPA requirements. The light shall be labeled "Do Not Move Apparatus If Light Is On."</p> <p>The same circuit that activates the Do Not Move Apparatus indicator shall activate a pulsing alarm when the parking brake is released.</p> <p><u>DO NOT MOVE TRUCK MESSAGES</u></p> <p>Messages shall be displayed on the color display located within sight of the driver whenever the Do Not Move Truck light is active. The messages shall designate the item or items not in the stowed for vehicle travel position (parking brake disengaged).</p> <p>The following messages shall be displayed (where applicable):</p> <ul style="list-style-type: none"> • Do Not Move Truck • DS Cab Door Open (Driver Side Cab Door Open) • PS Cab Door Open (Passenger's Side Cab Door Open) • DS Crew Cab Door Open (Driver Side Crew Cab Door Open) • PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open) • DS Body Door Open (Driver Side Body Door Open) • PS Body Door Open (Passenger's Side Body Door Open) 		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> • Rear Body Door Open • DS Ladder Rack Down (Driver Side Ladder Rack Down) • PS Ladder Rack Down (Passenger Side Ladder Rack Down) • Deck Gun Not Stowed • Lt Tower Not Stowed (Light Tower Not Stowed) • Fold Tank Not Stowed (Fold-A-Tank Not Stowed) • Aerial Not Stowed (Aerial Device Not Stowed) • Stabilizer Not Stowed • Steps Not Stowed • Handrail Not Stowed <p>Any other device that is opened, extended, or deployed that creates a hazard or is likely to cause major damage to the apparatus if the apparatus is moved shall be displayed as a caution message after the parking brake is disengaged.</p> <p><u>SWITCH PANELS</u></p> <p>The emergency light switch panel shall have a master switch for ease of use plus individual switches for selective control. Each switch panel shall contain eight (8) membrane-type switches each rated for one million (1,000,000) cycles. Panels containing less than eight (8) switch assignments shall include non-functioning black appliqué. Documentation shall be provided by the manufacturer indicating the rated cycle life of the switches. The switch panel(s) shall be located in the overhead position above the windshield on the driver side overhead to allow for easy access.</p> <p>Additional switch panel(s) shall be located in the overhead position(s) above the windshield or in designated locations on the lower instrument panel layout.</p> <p>The switches shall be membrane-type and also act as an integral indicator light. For quick, visual indication the entire surface of the switch shall be illuminated white whenever back lighting is activated and illuminated green whenever the switch is active. An active illuminated switch shall flash when interlock requirements are not met or device is actively being load managed. For ease of use, a two (2)-ply, scratch resistant laser engraved label indicating the use of each switch shall be placed in the center of the switch. The label shall allow light to pass through the letters for ease of use in low light conditions.</p> <p><u>WIPER CONTROL</u></p> <p>For simple operation and easy reach, the windshield wiper control shall be an integral part of the directional light lever located on the steering column. The wiper control shall include high and low wiper speed settings, a one (1)-speed intermittent wiper control and windshield washer switch. The control shall have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use.</p>		

	Bidder Complies	
	Yes	No
<p><u>HOURLMETER - AERIAL DEVICE</u> An hourmeter for the aerial device shall be provided and located within the cab display or instrument panel.</p> <p><u>AERIAL MASTER</u> There shall be a master switch for the aerial operating electrical system provided.</p> <p><u>AERIAL PTO SWITCH</u> A PTO switch for the aerial with indicator light shall be provided.</p> <p><u>SPARE CIRCUIT</u> There shall be two (2) pair of wires, including a positive and a negative, installed on the apparatus.</p> <p>The above wires shall have the following features:</p> <ul style="list-style-type: none"> • The positive wire shall be connected directly to the battery power • The negative wire shall be connected to ground • Wires shall be protected to 15 amps at 12 volts DC • Power and ground shall terminate officer side dash area • Termination shall be with 15 amp, power point plug with rubber cover • Wires shall be sized to 125 percent of the protection <p>The circuit(s) may be load managed when the parking brake is set.</p> <p><u>INFORMATION CENTER</u> An information center employing a 7.00" diagonal touch screen color LCD display shall be encased in an ABS plastic housing.</p> <p>The information center shall have the following specifications:</p> <ul style="list-style-type: none"> • Operate in temperatures from -40 to 185 degrees Fahrenheit • An Optical Gel shall be placed between the LCD and protective lens • Five weather resistant user interface switches • Grey with black accents • Sunlight Readable • Linux operating system • Minimum of 1000nits rated display • Display can be changed to an available foreign language • A LCD display integral to the cab gauge panel shall be included as outlined in the cab instrumentation area. • Programmed to read US Customary 		

Bidder Complies	
Yes	No

GENERAL SCREEN DESIGN

Where possible, background colors shall be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background shall be used.

If a caution or warning situation arises the following shall occur:

- An amber background/text color shall indicate a caution condition
- A red background/text color shall indicate a warning condition
- The information center shall utilize an "Alert Center" to display text messages for audible alarm tones. The text messages shall be written to identify the item(s) causing the audible alarm to sound. If more than one (1) text message occurs, the messages shall cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" shall change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color shall be shown for all alert center messages.
- A label for each button shall exist. The label shall indicate the function for each active button for each screen. Buttons that are not utilized on specific screens shall have a button label with no text or symbol.

HOME/TRANSIT SCREEN

This screen shall display the following:

- Vehicle Mitigation (if equipped)
- Water Level (if equipped)
- Foam Level (if equipped)
- Seat Belt Monitoring Screen
- Tire Pressure Monitoring (if equipped)
- Digital Speedometer
- Active Alarms

ON SCENE SCREEN

This screen shall display the following and shall be auto activated with pump engaged (if equipped):

- Battery Voltage
- Fuel
- Oil Pressure
- Coolant Temperature
- RPM
- Water Level (if equipped)

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> • Foam Level (if equipped) • Foam Concentration (if equipped) • Water Flow Rate (if equipped) • Water Used (if equipped) • Active Alarms <p><u>VIRTUAL BUTTONS</u></p> <p>There shall be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.</p> <p><u>PAGE SCREEN</u></p> <p>The page screen shall display the following and allow the user to progress into other screens for further functionality:</p> <ul style="list-style-type: none"> • Diagnostics <ul style="list-style-type: none"> ○ Faults <ul style="list-style-type: none"> ▪ Listed by order of occurrence ▪ Allows to sort by system ○ Interlock <ul style="list-style-type: none"> ▪ Throttle Interlocks ▪ Pump Interlocks (if equipped) ▪ Aerial Interlocks (if equipped) ▪ PTO Interlocks (if equipped) ○ Load Manager <ul style="list-style-type: none"> ▪ A list of items to be load managed shall be provided. The list shall provide a description of the load. ▪ The lower the priority numbers the earlier the device shall be shed should a low voltage condition occur. ▪ The screen shall indicate if a load has been shed (disabled) or not shed. ▪ "At a glance" color features are utilized on this screen. ○ Systems <ul style="list-style-type: none"> ▪ Command Zone <ul style="list-style-type: none"> • Module type and ID number • Module Version • Input or output number • Circuit number connected to that input or output • Status of the input or output • Power and Constant Current module diagnostic information ▪ Foam (if equipped) ▪ Pressure Controller (if equipped) 		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <ul style="list-style-type: none"> ▪ Generator Frequency (if equipped) ○ Live Data <ul style="list-style-type: none"> ▪ General Truck Data • Maintenance <ul style="list-style-type: none"> ○ Engine oil and filter ○ Transmission oil and filter ○ Pump oil (if equipped) ○ Foam (if equipped) ○ Aerial (if equipped) • Setup <ul style="list-style-type: none"> ○ Clock Setup ○ Date & Time <ul style="list-style-type: none"> ▪ 12 or 24 hour format ▪ Set time and date ○ Backlight <ul style="list-style-type: none"> ▪ Daytime ▪ Night time ▪ Sensitivity ○ Unit Selection ○ Home Screen ○ Virtual Button Setup ○ On Scene Screen Setup ○ Configure Video Mode <ul style="list-style-type: none"> ▪ Set Video Contrast ▪ Set Video Color ▪ Set Video Tint • Do Not Move <ul style="list-style-type: none"> ○ The screen shall indicate the approximate location and type of item that is open or is not stowed for travel. The actual status of the following devices shall be indicate <ul style="list-style-type: none"> ▪ Driver Side Cab Door ▪ Passenger's Side Cab Door ▪ Driver Side Crew Cab Door ▪ Passenger's Side Crew Cab Door ▪ Driver Side Body Doors ▪ Passenger's Side Body Doors ▪ Rear Body Door(s) ▪ Ladder Rack (if applicable) ▪ Deck Gun (if applicable) 		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> ▪ Light Tower (if applicable) ▪ Hatch Door (if applicable) ▪ Stabilizers (if applicable) ▪ Steps (if applicable) <ul style="list-style-type: none"> • Notifications <ul style="list-style-type: none"> ○ View Active Alarms <ul style="list-style-type: none"> ▪ Shows a list of all active alarms including date and time of the occurrence is shown with each alarm ▪ Silence Alarms - All alarms are silenced • Timer Screen • HVAC (if equipped) • Tire Information (if equipped) • Aerial Set Up Confirmation (if equipped) <p>Button functions and button labels may change with each screen.</p> <p><u>VEHICLE DATA RECORDER</u></p> <p>There shall be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.</p> <p>The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line.</p> <p>The vehicle data recorder shall be capable of recording the following data via hardwired and/or CAN inputs:</p> <ul style="list-style-type: none"> • Vehicle Speed - MPH • Acceleration - MPH/sec • Deceleration - MPH/sec • Engine Speed - RPM • Engine Throttle Position - % of Full Throttle • ABS Event - On/Off • Seat Occupied Status - Yes/No by Position • Seat Belt Buckled Status - Yes/No by Position • Master Optical Warning Device Switch - On/Off • Time - 24 Hour Time • Date - Year/Month/Day 		

Bidder Complies	
Yes	No

Seat Belt Monitoring System

A seat belt monitoring system (SBMS) shall be provided on the color display. The SBMS shall be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following:

- Seat Occupied & Buckled = Green LED indicator illuminated
- Seat Occupied & Unbuckled = Red LED indicator with audible alarm
- No Occupant & Buckled = Red LED indicator with audible alarm
- No Occupant & Unbuckled = No indicator and no alarm

The seat belt monitoring screen shall become active on the color display when:

- The home screen is active:
 - and there is any occupant seated but not buckled or any belt buckled with an occupant.
 - and there are no other Do Not Move Apparatus conditions present. As soon as all Do Not Move Apparatus conditions are cleared, the SBMS shall be activated.

The SBMS shall include an audible alarm that shall warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.

RADIO ANTENNA MOUNT

There shall be one (1) standard 1.125", 18 thread antenna-mounting base(s) installed on the right side on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the instrument panel area. A weatherproof cap shall be installed on the mount.

VEHICLE CAMERA SYSTEM

There shall be a color vehicle camera system provided with the following:

- One (1) camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse

The camera images shall be displayed on the driver's color display. Audio from the microphone on the active camera shall be not provided.

The following components shall be included:

- One (1) camera
- One (1) amplified speaker (if applicable)
- All necessary cables

	Bidder Complies	
	Yes	No
<p><u>ELECTRICAL POWER CONTROL SYSTEM</u></p> <p>The primary power distribution shall be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Additional electrical distribution centers shall be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers shall be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers shall be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays shall be easily accessible.</p> <p>Distribution centers located throughout the vehicle shall contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership.</p> <p>Circuit protection devices, which conform to SAE standards, shall be utilized to protect electrical circuits. All circuit protection devices shall be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers shall be Type-I automatic reset (continuously resetting). When required, automotive type fuses shall be utilized to protect electronic equipment. Control relays and solenoid shall have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.</p> <p><u>SOLID-STATE CONTROL SYSTEM</u></p> <p>A solid-state electronics based control system shall be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network shall consist of electronic modules located near their point of use to reduce harness lengths and improve reliability. The control system shall comply with SAE J1939-11 recommended practices.</p> <p>The control system shall operate as a master-slave system whereas the main control module instructs all other system components. The system shall contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error. The system shall utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership.</p> <p>For increased reliability and simplified use the control system modules shall include the following attributes:</p> <ul style="list-style-type: none"> • Green LED indicator light for module power • Red LED indicator light for network communication stability status • Control system self test at activation and continually throughout vehicle operation • No moving parts due to transistor logic • Software logic control for NFPA mandated safety interlocks and indicators • Integrated electrical system load management without additional components 		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> • Integrated electrical load sequencing system without additional components • Customized control software to the vehicle's configuration • Factory and field re programmable to accommodate changes to the vehicle's operating parameters • Complete operating and troubleshooting manuals • USB connection to the main control module for advanced troubleshooting <p>To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules shall meet the following specifications:</p> <ul style="list-style-type: none"> • Module circuit board shall meet SAE J771 specifications • Operating temperature from -40C to +70C • Storage temperature from -40C to +70C • Vibration to 50g <p>IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)</p> <p>Operating voltage from eight (8) volts to 16 volts DC</p> <p>The main controller shall activate status indicators and audible alarms designed to provide warning of problems before they become critical.</p> <p><u>CIRCUIT PROTECTION AND CONTROL DIAGRAM</u></p> <p>Copies of all job-specific, computer network input and output (I/O) connections shall be provided with each chassis. The sheets shall indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information.</p> <p><u>ON-BOARD ADVANCED/VISUAL ELECTRICAL SYSTEM DIAGNOSTICS</u></p> <p>The on-board information center shall include the following diagnostic information:</p> <ul style="list-style-type: none"> • Text description of active warning or caution alarms • Simplified warning indicators • Amber caution indication with intermittent alarm • Red warning indication with steady tone alarm <p>All control system modules, with the exception of the main control module, shall contain on-board visual diagnostic LEDs that assist in troubleshooting. The LEDs shall be enclosed within the sealed, transparent module housing near the face of the module. One LED for each input or output shall be provided and shall illuminate whenever the respective input or output is active. Color-coded labels within the modules shall encompass the LEDs for ease of identification. The</p>		

	Bidder Complies	
	Yes	No
<p>LED indicator lights shall provide point of use information for reduced troubleshooting time without the need for an additional computer.</p> <p><u>TECH MODULE WITH WIFI</u></p> <p>An in cab module will provide WiFi wireless interface and data logging capability (no exception). The WiFi interface will comply with IEEE 802.11 b/g/n capabilities while communicating at 2.4 Gigahertz. The module will provide an external antenna connection allowing a line of site communication range of up to 300 feet with a roof mounted antenna.</p> <p>The module will transmit a password protected web page to a WiFi enabled device (i.e. most smart phones, tablets or laptops) allowing two levels of user interaction. The firefighter level will allow vehicle monitoring of the vehicle and firefighting systems on the apparatus. The technician level will allow diagnostic access to inputs and outputs installed on the control and information system.</p> <p>The data logging capability will record faults from the engine, transmission, ABS and control and information systems as they occur. No other data will be recorded at the time the fault occurs. The data logger will provide up to 2 Gigabytes of data storage.</p> <p>A USB connection will be provided on the Tech Module. It will provide a means to download data logger information and update software in the device.</p> <p><u>PROGNOSTICS</u></p> <p>A software based vehicle tool shall be provided to predict remaining life of the vehicles critical fluid and events (no exception).</p> <p>The system shall send automatic indications to the color display and/or wireless enabled device to proactively alert of upcoming service intervals.</p> <p>Prognostics shall include:</p> <ul style="list-style-type: none"> • Engine oil and filter • Transmission oil and filter • Pump oil (if equipped) • Foam oil (if equipped) • Aerial oil and filter (if equipped) <p><u>ADVANCED DIAGNOSTICS</u></p> <p>An advanced, Windows-based, diagnostic software program shall be provided for this control system. The software shall provide troubleshooting tools to service technicians equipped with a Windows-based computer or wireless enabled device.</p>		

	Bidder Complies	
	Yes	No
<p>The service and maintenance software shall be easy to understand and use and have the ability to view system input/output (I/O) information.</p> <p><u>INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM</u></p> <p>A system shall be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.</p> <p><u>VOLTAGE MONITOR SYSTEM</u></p> <p>A voltage monitoring system shall be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system shall provide visual and audible warning when the system voltage is below or above optimum levels.</p> <p>The alarm shall activate if the system falls below 11.8 volts DC for more than two (2) minutes.</p> <p><u>DEDICATED RADIO EQUIPMENT CONNECTION POINTS</u></p> <p>There shall be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment.</p> <ul style="list-style-type: none"> • The studs shall consist of the following: • 12-volt 40-amp battery switched power • 12-volt 60-amp ignition switched power • 12-volt 60-amp direct battery power <p>There shall also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.</p> <p><u>ENHANCED SOFTWARE</u></p> <p>The solid-state control system shall include the following software enhancements:</p> <p>All perimeter lights and scene lights (where applicable) shall be deactivated when the parking brake is released.</p> <p>Cab and crew cab dome lights shall remain on for ten (10) seconds for improved visibility after the doors close. The dome lights shall dim after ten (10) seconds or immediately if the vehicle is put into gear.</p> <p>Cab and crew cab perimeter lights shall remain on for ten (10) seconds for improved visibility after the doors close. The dome lights shall dim after ten (10) seconds or immediately if the vehicle is put into gear.</p> <p><u>EMI/RFI PROTECTION</u></p> <p>To prevent erroneous signals from crosstalk contamination and interference, the electrical system shall meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio</p>		

	Bidder Complies	
	Yes	No
<p>frequency emissions. An advanced electrical system shall be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.</p> <p>The apparatus shall have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system shall meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, shall provide EMC testing reports from testing conducted on an entire apparatus and shall certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter requirements. Component and partial (incomplete) vehicle testing is not adequate as overall vehicle design can impact test results and thus is not acceptable by itself.</p> <p>EMI/RFI susceptibility shall be controlled by applying appropriate circuit designs and shielding. The electrical system shall be designed for full compatibility with low-level control signals and high-powered two-way radio communication systems. Harness and cable routing shall be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.</p> <p><u>ELECTRICAL</u></p> <p>All 12-volt electrical equipment installed by the apparatus manufacturer shall conform to modern automotive practices. All wiring shall be high temperature crosslink type. Wiring shall be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers shall be provided which conform to SAE Standards. Wiring shall be color, function and number coded. Function and number codes shall be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors shall be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.</p> <p>Electrical wiring and equipment shall be installed utilizing the following guidelines:</p> <ol style="list-style-type: none"> 1. All holes made in the roof shall be caulked with silicon, rope caulk is not acceptable. Large fender washers, liberally caulked, shall be used when fastening equipment to the underside of the cab roof. 2. Any electrical component that is installed in an exposed area shall be mounted in a manner that shall not allow moisture to accumulate in it. Exposed area shall be defined as any location outside of the cab or body. 3. Electrical components designed to be removed for maintenance shall not be fastened with nuts and bolts. Metal screws shall be used in mounting these devices. Also a coil of wire shall be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work. 		

	Bidder Complies	
	Yes	No
<p>4. Corrosion preventative compound shall be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections shall require this compound in the plug to prevent corrosion and for easy separation (of the plug).</p> <p>5. All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.</p> <p>6. All electrical terminals in exposed areas shall have silicon (1890) applied completely over the metal portion of the terminal.</p> <p>All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, shall be furnished. Rear identification lights shall be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads shall be protected from damage by installing a false bulkhead inside the rear compartments.</p> <p>An operational test shall be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.</p> <p>The results of the tests shall be recorded and provided to the purchaser at time of delivery.</p> <p><u>BATTERY SYSTEM</u></p> <p>There shall be six (6) 12 volt batteries that include the following features shall be provided:</p> <ul style="list-style-type: none"> • 950 CCA, cold cranking amps • 190 amp reserve capacity • High cycle • Group 31 • Rating of 5700 CCA at 0 degrees Fahrenheit • -140 minutes of reserve capacity • Threaded stainless steel studs <p>Each battery case shall be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover shall be manifold vented with a central venting location to allow a 45 degree tilt capacity.</p> <p>The inside of each battery shall consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.</p> <p><u>BATTERY SYSTEM</u></p> <p>There shall be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.</p>		

	Bidder Complies	
	Yes	No
<p><u>MASTER BATTERY SWITCH</u></p> <p>There shall be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.</p> <p>An indicator light shall be provided on the instrument panel to notify the driver of the status of the battery system.</p> <p><u>BATTERY COMPARTMENTS</u></p> <p>The batteries shall be stored in well-ventilated compartments that are located under the cab and bolted directly to the chassis frame. The battery compartments shall be constructed of 3/16" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The compartments shall include formed fit heavy-duty roto-molded polyethylene battery tray inserts with drains on each side of the frame rails. The batteries shall be mounted inside of the roto-molded trays.</p> <p><u>JUMPER STUDS</u></p> <p>One (1) set of battery jumper studs with plastic color-coded covers shall be installed on the battery box on the driver's side. This shall allow enough room for easy jumper cable access.</p> <p><u>BATTERY CHARGER</u></p> <p>There shall be a battery charger with controller provided.</p> <p>The battery charger shall be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger.</p> <p>There shall be a remote indicator included.</p> <p>Battery charger shall be located in the crew cab seat riser.</p> <p>The battery charger indicator shall be located behind the driver's door on the outside of the cab.</p> <p><u>AUTO EJECT FOR SHORELINE</u></p> <p>There shall be one (1) 20 amp 120 volt AC shoreline inlet(s) provided to operate the dedicated 120 volt AC circuits on the apparatus.</p> <p>The shoreline inlet(s) shall include red weatherproof flip up cover(s).</p> <p>There shall be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.</p> <p>The shoreline(s) shall be connected to the battery charger.</p> <p>There shall be a mating connector body supplied with the loose equipment.</p>		

	Bidder Complies	
	Yes	No
<p>There shall be a label installed near the inlet(s) that state the following:</p> <ul style="list-style-type: none"> • Line Voltage • Current Rating (amps) • Phase • Frequency <p>The shoreline receptacle shall be located on the driver side of cab, above wheel.</p> <p><u>ALTERNATOR</u></p> <p>An alternator shall be provided that has a rated output current of 430 amps, as measured by SAE method J56. The alternator shall feature an integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). The alternator shall be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.</p> <p><u>ELECTRONIC LOAD MANAGER</u></p> <p>An electronic load management (ELM) system shall be provided that monitors the vehicles 12-volt electrical system, automatically reducing the electrical load in the event of a low voltage condition, and automatically restoring the shed electrical loads when a low voltage condition expires. This ensures the integrity of the electrical system.</p> <p>For improved reliability and ease of use, the load manager system shall be an integral part of the vehicle's solid state control system requiring no additional components to perform load management tasks. Load management systems which require additional components shall not be allowed.</p> <p>The system shall include the following features:</p> <ul style="list-style-type: none"> • System voltage monitoring. • A shed load shall remain inactive for a minimum of five minutes to prevent the load from cycling on and off. • Sixteen available electronic load shedding levels. • Priority levels can be set for individual outputs. • High Idle to not be controlled by the load manager. <ul style="list-style-type: none"> ○ If enabled: <ul style="list-style-type: none"> ▪ "Load Man Hi-Idle On" shall display on the information center. ▪ Hi-Idle shall not activate until 30 seconds after engine start up. • Individual switch "on" indicator to flash when the particular load has been shed. • The information center indicates system voltage. 		

Bidder Complies	
Yes	No

The information center, where applicable, includes a "Load Manager" screen indicating the following:

- Load managed items list, with priority levels and item condition.
- Individual load managed item condition:
 - ON = not shed
 - SHED = shed

SEQUENCER

A sequencer shall be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation shall allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12 volt load to prolong the life of the alternator.

For improved reliability and ease of use, the load sequencing system shall be an integral part of the vehicle's solid state control system requiring no additional components to perform load sequencing tasks. Load sequencing systems which require additional components shall not be allowed.

Emergency light sequencing shall operate in conjunction with the emergency master light switch. When the emergency master switch is activated, the emergency lights shall be activated one by one at half-second intervals. Sequenced emergency light switch indicators shall flash while waiting for activation.

When the emergency master switch is deactivated, the sequencer shall deactivate the warning light loads in the reverse order.

Sequencing of the following items shall also occur, in conjunction with the ignition switch, at half-second intervals:

- Cab Heater and Air Conditioning
- Crew Cab Heater (if applicable)
- Crew Cab Air Conditioning (if applicable)
- Exhaust Fans (if applicable)
- Third Evaporator (if applicable)

HEADLIGHTS

There shall be four (4) rectangular halogen lights mounted in the front quad style, chrome trim housing on each side of the cab grille:

- The outside light on each side shall contain a halogen low and high beam module.
- The inside light on each side shall contain a halogen high beam module only.

Bidder Complies	
Yes	No

DIRECTIONAL LIGHTS

There shall be two (2) LED combination directional/marker lights provided. The lights shall be located on the outside cab corners, next to the headlights.

The color of the lenses shall be clear.

INTERMEDIATE LIGHT

There shall be two (2) amber LED turn signal marker lights furnished, one (1) each side, in the rear fender panel. The light shall double as a turn signal and marker light.

PLATFORM CLEARANCE/MARKER/ID LIGHTS

There shall be five (5) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:

- Three (3) amber LED identification lights shall be installed on the front of the aerial basket, centered.
- Two (2) amber LED clearance/marker lights shall be installed, one (1) on each corner of the aerial basket visible from the side and the front of the vehicle.

REAR CLEARANCE/MARKER/ID LIGHTING

There shall be three (3) LED identification lights located at the rear installed per the following:

- As close as practical to the vertical centerline
- Centers spaced not less than 6.00" or more than 12.00" apart
- Red in color
- All at the same height

There shall be two (2) LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:

- To indicate the overall width of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the rear
- All at the same height

There shall be two (2) LED lights installed on the side of the apparatus used as marker lights as close to the rear as practical per the following:

- To indicate the overall length of the vehicle

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> • One (1) each side of the vertical centerline • As near the top as practical • Red in color • To be visible from the side • All at the same height <p>The lights shall be mounted with no guard.</p> <p>There shall be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.</p> <p>There shall be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.</p> <p>Per FMVSS 108 and CMVSS 108 requirements.</p> <p><u>CAB CLEARANCE/MARKER/ID LIGHTS</u></p> <p>There shall be seven (7) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:</p> <ul style="list-style-type: none"> • Three (3) amber LED identification lights shall be installed in the center of the cab above the windshield. • Two (2) amber LED clearance lights shall be installed, one (1) on each outboard side of the cab above the windshield. • Two (2) amber LED marker lights shall be installed, one (1) on each side above the cab doors. <p><u>MARKER LIGHTS</u></p> <p>There shall be one (1) pair of amber and red LED marker lights with rubber arm, located at the rear most lower corner of the body. The amber lens shall face the front and the red lens shall face the rear of the truck.</p> <p>These lights shall be activated with the running lights of the vehicle.</p> <p><u>REAR FMVSS LIGHTING</u></p> <p>The rear stop/tail and directional LED lighting shall consist of the following:</p> <ul style="list-style-type: none"> • Two (2) red LED stop/tail lights • Two (2) amber LED arrow turn lights <p>The lights shall be provided with clear lenses.</p>		

	Bidder Complies	
	Yes	No
<p>The lights shall be mounted in a polished combination housing.</p> <p>There shall be two (2) LED backup lights provided in the tail light housing.</p> <p><u>LICENSE PLATE BRACKET</u></p> <p>There shall be one (1) license plate bracket mounted on the rear of the body.</p> <p>A white LED light shall illuminate the license plate. A polished stainless steel light shield shall be provided over the light that shall direct illumination downward, preventing white light to the rear.</p> <p><u>LIGHTING BEZEL</u></p> <p>There shall be two (2) four (4) place chromed ABS housings provided for the rear stop/tail, directional, back up, scene lights or warning lights.</p> <p><u>BACK-UP ALARM</u></p> <p>A solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse shall be provided. The device shall sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.</p> <p><u>CAB PERIMETER SCENE LIGHTS</u></p> <p>There shall be four (4) 20.00" white LED strip lights provided, one (1) for each cab door.</p> <p>These lights shall be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.</p> <p><u>PUMP HOUSE PERIMETER LIGHTS</u></p> <p>There shall be one (1) 20.00" LED weatherproof strip light with bracket provided under the passenger's side pump panel running board.</p> <p>The light shall be controlled by the same means as the body perimeter lights.</p> <p><u>BODY PERIMETER SCENE LIGHTS</u></p> <p>There shall be two (2) 20.00" 12 volt DC LED strip lights provided.</p> <p>The lights shall be mounted in the following locations:</p> <ul style="list-style-type: none"> • One (1) light under the driver's side turntable access steps • One (1) light under the passenger's side turntable access steps <p>The perimeter scene lights shall be activated when the parking brake is applied.</p> <p><u>STEP LIGHTS</u></p> <p>Two (2) LED step lights shall be provided, one (1) on each side of the front body.</p>		

	Bidder Complies	
	Yes	No
<p>In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.</p> <p>The lights shall be actuated with the pump panel light switch.</p> <p>All other steps on the apparatus shall be illuminated per the current edition of NFPA 1901.</p> <p><u>ADDITIONAL STEP LIGHT</u></p> <p>Additional lighting shall be provided by LED step lights. The step lights shall be installed under stirrup step below passenger side running board.. The quantity of additional step lights shall be one (1) light.</p> <p>In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.</p> <p>The additional step lights shall be activated by the same means as the standard step lights.</p> <p><u>12 VOLT LIGHT BRACKET</u></p> <p>There shall be two (2) aluminum treadplate bracket(s) installed above compartment D2 and P2. for the recessed flood light. The bracket(s) shall have all wiring totally enclosed.</p> <p><u>12 VOLT LIGHTING</u></p> <p>There shall be one (1) 12 volt surface mounted LED combination spot/flood light(s) located mount behind passenger side crew cab door, high as possible.. The lights shall be mounted with chrome flange(s).</p> <p>The light(s) selected above shall be controlled by the following:</p> <ul style="list-style-type: none"> • a switch at the driver's side switch panel • a switch at the passenger's side switch panel • no additional switch location • no additional switch location <p>These light(s) may be load managed when the parking brake is set.</p> <p><u>12 VOLT LIGHTING</u></p> <p>There shall be one (1) 12 volt surface mounted LED combination spot/flood light(s) located mount behind driver side crew cab door, high as possible.. The lights shall be mounted with chrome flange(s).</p>		

	Bidder Complies	
	Yes	No
<p>The light(s) selected above shall be controlled by the following:</p> <ul style="list-style-type: none"> • a switch at the driver's side switch panel • a switch at the passenger's side switch panel • no additional switch location • no additional switch location <p>These light(s) may be load managed when the parking brake is set.</p> <p><u>12 VOLT LIGHTING</u></p> <p>There shall be one (1) 12 volt surface mounted LED combination spot/flood light(s) located on 4-way aluminum box above compartment D2 . The lights shall be mounted with chrome flange(s).</p> <p>The light(s) selected above shall be controlled by the following:</p> <ul style="list-style-type: none"> • a switch at the driver's side switch panel • a switch at the passenger's side switch panel • no additional switch location • no additional switch location <p>These light(s) may be load managed when the parking brake is set.</p> <p><u>12 VOLT LIGHTING</u></p> <p>There shall be one (1) 12 volt surface mounted LED combination spot/flood light(s) located on 4-way aluminum box above compartment P2 . The lights shall be mounted with chrome flange(s).</p> <p>The light(s) selected above shall be controlled by the following:</p> <ul style="list-style-type: none"> • a switch at the driver's side switch panel • a switch at the passenger's side switch panel • no additional switch location • no additional switch location <p>These light(s) may be load managed when the parking brake is set.</p> <p><u>DECK LIGHTS</u></p> <p>There shall be two (2) white 12 volt DC LED floodlights with stud bail mount provided at the rear of the hose bed, one (1) each side.</p> <p>The lights shall be activated by a control from a switch at the rear of the truck and a switch located at the driver side switch panel.</p>		

	Bidder Complies	
	Yes	No
<p><u>WALKING SURFACE LIGHT</u></p> <p>There shall be 4" round black 12 volt DC LED floodlight with bolt mount provided to illuminate the entire designated walking surface on top of the body.</p> <p>The light shall be activated when the body step lights are on.</p> <p><u>WATER TANK</u></p> <p>It shall have a capacity of 300 gallons and shall be constructed of polypropylene plastic in an L-shape with a notch for hose storage.</p> <p>The joints and seams shall be nitrogen welded inside and out.</p> <p>The tank shall be baffled in accordance with NFPA 1901 requirements.</p> <p>The baffles shall have vent openings at both the top and bottom of each baffle to permit movement of air and water between compartments.</p> <p>The longitudinal partitions shall be constructed of .38" polypropylene plastic and extend from the bottom of the tank through the top cover to allow positive welding.</p> <p>The transverse partitions extend from 4" off the bottom to the underside of the top cover.</p> <p>All partitions interlock and shall be welded to the tank bottom and sides.</p> <p>The tank top shall be constructed of .50" polypropylene.</p> <p>It shall be recessed .38" and shall be welded to the tank sides and the longitudinal partitions.</p> <p>It shall be supported to keep it rigid during fast filling conditions.</p> <p>Construction shall include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions.</p> <p>Two of the dowels shall be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes.</p> <p>A sump shall be provided at the bottom of the water tank. The sump shall include a drain plug and the tank outlet.</p> <p>Tank shall be installed in a fabricated "cradle" assembly constructed of structural steel.</p> <p>Sufficient crossmembers are provided to properly support bottom of tank.</p> <p>Crossmembers are constructed of steel bar channel or rectangular tubing.</p> <p>Tank "floats" in cradle to avoid torsional stress caused by chassis frame flexing.</p>		

	Bidder Complies	
	Yes	No
<p>Rubber cushions, .50" thick x 3.00" wide, shall be placed on all horizontal surfaces that the tank rests on.</p> <p>Stops are provided to prevent an empty tank from bouncing excessively while moving vehicle.</p> <p>Tank mounting system is approved by the manufacturer.</p> <p>Fill tower shall be constructed of .50" polypropylene and shall be a minimum of 8.00" wide x 14.00" long.</p> <p>Fill tower shall be furnished with a .25" thick polypropylene screen and a hinged cover.</p> <p>An overflow pipe, constructed of 4.00" schedule 40 polypropylene, shall be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.</p> <p><u>HOSE BED</u></p> <p>The hose body shall be fabricated of 0.125"-5052 aluminum with a nominal 38,000 psi tensile strength.</p> <p>The hose bed shall be located between the tank and the side compartments on the passenger's side. The hose chute shall have a full-height smooth aluminum door at the rear, with a spring-loaded hinge at the top of the door.</p> <p>The sides shall not form any portion of the fender compartments.</p> <p>The hose body width shall be as wide as possible inside.</p> <p>The upper edges of side panels shall have a double break for rigidity.</p> <p>The hose bed shall be located ahead of the ladder turntable.</p> <p>Hose removal shall be via "chute(s)" at rear of the body under turntable area.</p> <p>Flooring of the hose bed shall be removable aluminum grating with the top surface corrugated to aid in hose aeration.</p> <p>The grating slats shall be 0.50" x 4.50" with spacing between slats for hose ventilation.</p> <p>Hose capacity shall be a minimum of 1000' of 5.00" large diameter hose.</p> <p><u>AERIAL HOSE BED HOSE RESTRAINT</u></p> <p>The hose in the hose bed shall be restrained by one (1) black nylon hook and loop strap at the top of the hose bed. The strap shall be installed to the top of the hose bed side sheets.</p>		

	Bidder Complies	
	Yes	No
<p><u>RUNNING BOARDS</u></p> <p>The running boards shall be fabricated of aluminum grating, with a serrated top edge, supported by structural steel angle assemblies bolted to the chassis frame rails.</p> <p>Running boards shall be 12.75" deep and are spaced away from the body .50".</p> <p>A riser shall be installed on the body to protect the painted surface from damage by stepping on the running boards.</p> <p>The entire outer edge of the stepping surface shall be covered with bright aluminum treadplate.</p> <p><u>TURNTABLE STEPS</u></p> <p>Steps to access the turntable from the driver side and passenger side shall be provided just behind the compartmentation.</p> <p>The steps shall be a swing-down design, with the stepping area made of non-slip material.</p> <p>The step height for the bottom step (the distance from the top surface of the step to the ground) shall not exceed 24.00" with the step in its extended position.</p> <p>No step height (the distance between the top surfaces of any two (2) adjacent steps) shall be greater than 14.00".</p> <p>The stepwell shall be lined with bright aluminum treadplate to act as scuffplates.</p> <p>The steps shall be connected to the "Do Not Move Truck" indicator.</p> <p>A handrail shall be provided on each side of the access steps.</p> <p><u>STEP LIGHTS</u></p> <p>There shall be three (3) LED step lights provided for each set of aerial turntable access steps.</p> <p>In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.</p> <p>The step lights shall be actuated by the aerial master switch in the cab.</p> <p><u>SMOOTH ALUMINUM REAR WALL</u></p> <p>The rear wall shall be smooth aluminum.</p> <p><u>TOW EYES</u></p> <p>Two (2) rear painted tow eyes shall be located at the rear of the apparatus and shall be mounted directly to the torque box. The inner and outer edges of the tow eyes shall be radiused.</p>		

	Bidder Complies	
	Yes	No
<p><u>COMPARTMENTATION</u></p> <p>Compartmentation shall be fabricated of 0.125" 5052 aluminum. The side compartments are an integral assembly with the rear fenders. Fully enclosed rear wheel housings shall be provided to prevent rust pockets and for ease of maintenance. Due to the severe loading requirements of this aerial, a method of compartment body support suitable for the intended load shall be provided.</p> <p>The backbone of the support system shall be the chassis frame rail, which is the strongest component of the chassis and is designed for sustaining maximum loads.</p> <p>A support system shall be used which shall incorporate a floating substructure by using Neoprene Elastomer isolators to allow the body to remain rigid while the chassis goes through its natural flex. The isolators shall have a broad range of proven viability in vehicular applications, be of a fail safe design, and allow for all necessary movement in three (3) transitional and rotational modes. This shall result in a 500 lb equipment rating for each lower compartment of the body.</p> <p>The compartmentation in front of the rear axle shall include a 3.00" steel support assemblies which are bolted to the chassis frame rails. A steel framework shall be mounted to the body above these support assemblies connected to the support assemblies with isolators. There shall be one (1) support assembly mounted to each chassis frame rail.</p> <p>The compartmentation behind the rear axle shall include 3.00" steel support assemblies which are bolted to the chassis frame rails and extend underneath to the outside edge of the body. The support assembly shall be coated to isolate the dissimilar metals before it is bolted to the body. There shall be one (1) support assembly mounted to each chassis frame rail.</p> <p>A design with body compartments hanging off of the chassis frame in an unsupported fashion shall not be acceptable.</p> <p>Compartment flooring shall be of the sweep out design with the floor higher than the compartment door lip. The compartment door openings are framed by flanging the edges in 1.75" and bending out again 0.75" to form an angle. Drip protection is provided over all door openings by means of bright aluminum extrusion or formed bright aluminum treadplate. Side compartment tops shall be covered with bright aluminum treadplate with a 1.00" rolled over edge on the front, rear and outward side. The covers are fabricated in one (1) piece and have the corners welded. A bright aluminum treadplate cover shall be provided on the front wall of each side compartment. All screws and bolts which protrude into a compartment shall have acorn nuts at the ends to prevent injury.</p> <p>The body design has been fully tested. Proven engineering and test techniques such as finite element analysis, model analysis, stress coating and strain gauging have been performed with</p>		

	Bidder Complies	
	Yes	No
<p>special attention given to fatigue life and structural integrity of the compartment body and substructure.</p> <p><u>AGGRESSIVE WALKING SURFACE</u> All exterior surfaces designated as stepping, standing, and walking areas shall comply with the required average slip resistance of the current NFPA standards.</p> <p><u>LOUVERS</u> All body compartments shall have a minimum of one (1) set of louvers stamped into a wall to provide the proper airflow inside the compartment and to prevent water from dripping into the compartment. These louvers shall be formed into the metal and not added to the compartment as a separate plate.</p> <p><u>DRIVER SIDE COMPARTMENTATION</u> A full height roll-up door compartment ahead of the rear wheels shall be 41.75" wide x 56.38" high x 24.25" deep inside with a clear door opening of 38.75" wide x 56.38" high.</p> <p>One (1) roll-up door compartment shall be located above the fender compartments and over the rear axles. The compartment shall be 72.13" wide x 33.25" high x 24.25" deep inside with a clear door opening of 63.75" wide x 25.50" high.</p> <p>A compartment with a single pan stainless steel door shall be located above the front stabilizer. The compartment shall be 24.25" wide x 15.50" high x 24.25" deep with a door opening of 18.50" wide x 12.75" high.</p> <p>There shall be one (1) compartment located below the turntable with a lift-up door. The compartment shall be 39.38" wide x 18.38" high x 21.25" deep with a door opening of 35.00" wide x 14.88" high.</p> <p>A full height roll-up door compartment behind the rear wheels shall be 43.75" wide x 49.25" high x 21.25" deep. The clear door opening shall be 40.75" wide x 41.62" high.</p> <p><u>PASSENGER SIDE COMPARTMENTATION</u> A full height roll-up door compartment ahead of the rear wheels shall be 41.75" wide x 56.38" high x 24.25" deep inside the lower 29.75" and 12.00" deep inside the upper portion with a clear door opening of 38.75" wide x 56.38" high.</p> <p>One (1) roll-up door compartment shall be located above the fender compartments and over the rear axles. The compartment shall be 72.13" wide x 33.25" high x 12.00" deep inside with a clear door opening of 63.75" wide x 25.50" high.</p>		

	Bidder Complies	
	Yes	No
<p>A compartment with a single pan stainless steel door shall be located above the front stabilizer. The compartment shall be 24.25" wide x 15.50" high x 12.00" deep with a door opening of 18.50" wide x 12.75" high.</p> <p>There shall be one (1) compartment located below the turntable with a lift-up door. The compartment shall be 39.38" wide x 18.38" high x 12.00" deep with a door opening of 35.00" wide x 14.88" high.</p> <p>A full height roll-up door compartment behind the rear wheels shall be 43.75" wide x 49.25" high x 21.25" deep inside the lower 29.75" and 12.00" deep in the upper portion. The clear door opening shall be 40.75" wide x 41.62" high.</p> <p><u>ROLLUP DOOR, SIDE COMPARTMENTS</u></p> <p>There shall be six (6) compartment doors installed on the side compartments. The doors shall be double faced aluminum construction and painted one (1) color to match the lower portion of the body.</p> <p>Lath sections shall be an interlocking rib design and shall be individually replaceable without complete disassembly of door.</p> <p>Between each slat at the pivoting joint shall be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals shall allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals shall be provided to resist ingress of dirt and weather and be made of Santoprene.</p> <p>All hinges, barrel clips and end pieces shall be nylon 66. All nylon components shall withstand temperatures from 300 to -40 degrees Fahrenheit. Hardened plastic shall not be acceptable.</p> <p>A polished stainless steel lift bar to be provided for each roll-up door. Lift bar shall be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge shall be supplied over lift bar for additional area to aid in closing the door.</p> <p>Doors shall be constructed from an aluminum box section. The exterior surface of each slat shall be flat. The interior surfaces shall be concave to provide strength and prevent loose equipment from jamming the door from inside.</p> <p>To conserve space in the compartments, the spring roller assembly shall not exceed 3.00" in diameter. A garage style roll door shall not be acceptable.</p> <p>The header for the rollup door assembly shall not exceed 4.00".</p> <p>A heavy-duty magnetic switch shall be used for control of open compartment door warning lights.</p>		

	Bidder Complies	
	Yes	No
<p><u>REAR BUMPER</u></p> <p>An 8.00" rear bumper shall be furnished. The bumper shall be constructed of steel framework and shall be covered with polished aluminum treadplate. The bumper shall be 7.00" deep x 5.00" high and shall be spaced away from the body approximately 1.00". The corners of the bumper shall be angled at 30 degrees. It shall extend the full width of the body. The center portion of the bumper shall be notched to allow clearance for the elbow on the aerial inlet.</p> <p><u>DOOR GUARD</u></p> <p>There shall be seven (7) compartment doors that shall include a guard/drip pan designed to protect the rollup door from damage when in the retracted position and contain any water spray. The guard shall be fabricated from stainless steel and installed on the driver side rearward compartment, rear compartment, passenger side rearward compartment, driver side forward over the wheel compartment, driver side forward compartment, passenger side forward over the wheel compartment and passenger side forward compartment.</p> <p><u>COMPARTMENT LIGHTING</u></p> <p>There shall be eight (8) compartment(s) with two (2) white 12 volt DC LED compartment light strips. The dual light strips shall be centered vertically along each side of the door framing. There shall be two (2) light strips per compartment. The dual light strips shall be in all body compartment(s).</p> <p>Any remaining compartments without light strips shall have a 6.00" diameter light. Each light shall have a number 1076 one filament, two wire bulb.</p> <p>Opening the compartment door shall automatically turn the compartment lighting on.</p> <p><u>ADDITIONAL COMPARTMENT LIGHTING</u></p> <p>There shall be two (2) 9.00" white 12 volt DC LED strip light(s) provided in the above door of compartment D5 & P5 compartment(s).</p> <p>Opening the compartment door(s) shall automatically turn the compartment lighting on.</p> <p><u>MOUNTING TRACKS</u></p> <p>There shall be six (6) sets of tracks for mounting shelf(s) in D3, D1, P1, P3, D4 and P4. These tracks shall be installed vertically to support the adjustable shelf(s), and shall be full height of the compartment. The tracks shall be painted to match the compartment interior.</p> <p><u>ADJUSTABLE SHELVES</u></p> <p>There shall be five (5) shelves with a capacity of 500 lb provided.</p> <p>The shelf construction shall consist of .188" aluminum painted spatter gray with 2.00" sides.</p> <p>Each shelf shall be infinitely adjustable by means of a threaded fastener, which slides in a track.</p>		

	Bidder Complies	
	Yes	No
<p>The shelves shall be held in place by .12" thick stamped plated brackets and bolts.</p> <p>The location(s) shall be in D1 in the upper third, in P1 in the upper third, in P3 in the upper third, in D4 in the upper third and in P4 in the upper third.</p> <p><u>SLIDE-OUT/TILT-DOWN TRAY</u></p> <p>There shall be one (1) slide-out tray provided.</p> <p>The bottom of each tray shall be constructed of 0.188" thick aluminum painted spatter gray while special aluminum extrusions shall be utilized for the tray sides, ends, and tracks. The corners shall be welded to form a rigid unit.</p> <p>A spring loaded lock shall be provided on each side at the front of the tray. Releasing the locks shall allow the tray to slide out approximately two-thirds (2/3) of its length from the stowed position and tip 30 degrees down from horizontal. The tray shall be equipped with ball bearing rollers for smooth operation.</p> <p>Rubber padded stops shall be provided for the tray in the extended position.</p> <p>The capacity rating of the tray shall be a minimum of 215 lb in the extended position.</p> <p>The vertical position of the tray within the compartment shall be adjustable.</p> <p>The location(s) shall be in D3 centered between the floor and ceiling.</p> <p><u>SLIDE-OUT FLOOR MOUNTED TRAY</u></p> <p>There shall be four (4) floor mounted slide-out tray(s) provided.</p> <p>Each tray shall have 2.00" high sides and a minimum capacity rating of 500 lb in the extended position.</p> <p>Each tray shall be constructed of aluminum painted spatter gray</p> <p>There shall be two undermount-roller bearing type slides rated at 250lb each provided. The pair of slides shall have a safety factor rating of 2.</p> <p>To ensure years of dependable service, the slides shall be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.</p> <p>To ensure years of easy operation, the slides shall require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file shall have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance shall be provided upon request.</p>		

	Bidder Complies	
	Yes	No
<p>Automatic locks shall be provided for both the "in" and "out" positions. The trip mechanism for the locks shall be located at the front of the tray for ease of use with a gloved hand.</p> <p>The location(s) shall be D1, P1, P4 and D4.</p> <p><u>REAR WALL</u></p> <p>The entire rear surface of the apparatus and all the doors shall be covered with smooth aluminum.</p> <p><u>RUB RAIL</u></p> <p>Bottom edge of the side compartments shall be trimmed with a bright aluminum extruded rub rail.</p> <p>Trim shall be 2.12" high with 1.38" flanges turned outward for rigidity.</p> <p>The rub rails shall not be an integral part of the body construction, which allows replacement in the event of damage.</p> <p><u>BODY FENDER CROWNS</u></p> <p>Stainless steel fender crowns shall be provided around the rear wheel openings.</p> <p>A rubber welting shall be provided between the body and the crown to seal the seam and restrict moisture from entering.</p> <p><u>HARD SUCTION HOSE</u></p> <p>Hard suction hose shall not be required.</p> <p><u>HANDRAILS</u></p> <p>The handrails shall be 1.25" diameter anodized aluminum extrusion, with a ribbed design, to provide a positive gripping surface.</p> <p>Chrome plated end stanchions shall support the handrail. Plastic gaskets shall be used between end stanchions and any painted surfaces.</p> <p>Drain holes shall be provided in the bottom of all vertically mounted handrails.</p> <p>Handrails shall be provided to meet NFPA 1901 section 15.8 requirements. The handrails shall be installed as noted on the sales drawing.</p> <p><u>SINGLE AIR BOTTLE STORAGE COMPARTMENT</u></p> <p>A quantity of seven (7) air bottle compartments, 7.75" in diameter x 26.00" deep, shall be provided on the driver side rearward of the rear wheels, on the passenger side forward of the rear wheels, on the passenger side rearward of the rear wheels, on the passenger side, two single compartments between the tandem rear wheels and on the driver side, two single compartments</p>		

	Bidder Complies	
	Yes	No
<p>between the tandem rear wheels. A polished stainless steel door with a Southco non-locking C2 chrome lever latch shall be provided to contain the air bottle. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal.</p> <p>Inside the compartment, black rubber matting shall be provided.</p> <p><u>EXTENSION LADDER</u></p> <p>There shall be one (1) 35' two (2) section aluminum extension ladder(s) provided.</p> <p><u>AERIAL EXTENSION LADDER</u></p> <p>There shall be one (1) 24' two (2) section aluminum extension ladder(s) provided and located in the aerial torque box.</p> <p><u>ROOF LADDERS</u></p> <p>There shall be two (2) 16' aluminum roof ladders provided.</p> <p><u>AERIAL ATTIC EXTENSION LADDER</u></p> <p>There shall be one (1) 14' aluminum attic extension ladder(s) provided.</p> <p><u>AERIAL FOLDING LADDER</u></p> <p>There shall be one (1) 10' aluminum folding ladder(s) provided and located in the aerial torque box.</p> <p><u>GROUND LADDER STORAGE</u></p> <p>The ground ladders are stored within the torque box and are removable from the rear.</p> <p>Ladders shall be enclosed to prevent road dirt and debris from fouling or damaging the ladders.</p> <p>The ladders rest in full length stainless steel slides and are arranged in such a manner that any one ladder can be removed without having to move or remove any other ladder.</p> <p>A rollup door shall be provided at the rear, double faced, aluminum construction, and an anodized satin finish. The latching mechanism shall consist of a full length lift bar lock with latches on the outer extrusion of the door frame.</p> <p>A stainless plate with a 2-bend flange and a stainless steel hinge shall be provided to secure the aerial ladder complement. The plate assembly shall be mounted to the bottom of the entrance of the torque box ladder storage area.</p> <p>When the plate is vertical, it shall secure the ladders and prevent them from migrating to the rear of the apparatus. When the plate is down and not securing the ladders, the rollup door can not close, which shall activate the "Open Door Indicator Light" within the cab. The rollup door together with hinge friction shall secure the plate in place during driving operations.</p>		

	Bidder Complies	
	Yes	No
<p>A door guard shall be provided to prevent tools inside the torque box from damaging the rollup door.</p> <p><u>LADDER STORAGE LIGHTING</u></p> <p>There shall be 21.00" white 12 volt DC LED strip lights in the torque box ladder storage compartment. One (1) light shall be provided on each side of the ladder storage area.</p> <p>The lights shall be activated when the ladder storage compartment door is opened.</p> <p><u>PIKE POLES</u></p> <p>There shall be two (2) 12' pike pole(s) with fiberglass I-beam handles provided. The pike pole(s) shall be stored in tubular holders located in the ground ladder storage compartment.</p> <p><u>8' PIKE POLE</u></p> <p>There shall be two (2) 8' pike pole(s) with fiberglass handle provided. The pike pole(s) shall be stored in tubular holders located in the ground ladder storage compartment.</p> <p><u>6' PIKE POLE</u></p> <p>There shall be two (2) 6' pike pole(s) with fiberglass handle provided. The pike pole(s) shall be stored in tubular holders located in the ground ladder storage compartment.</p> <p><u>STEPS</u></p> <p>A folding step shall be provided on the front of each fender compartment for access to the hose bed. The step shall be bright finished, non-skid with a black coating. The step shall incorporate an LED light to illuminate the stepping surface. The step can be used as a hand hold with two openings wide enough for a gloved hand.</p> <p>Three (3) additional folding steps shall be located one (1) on the driver side front bulkhead and two (2) on the passenger side front bulkhead. The step(s) shall be bright finished, non-skid with a black coating. Each step shall incorporate an LED light to illuminate the stepping surface. The step(s) can be used as a hand hold with two openings wide enough for a gloved hand.</p> <p><u>STIRRUP STEP</u></p> <p>There shall be one (1) stirrup step(s) provided below the body. Each step shall be designed with a grip pattern punched into bright aluminum treadplate material, providing support, slip resistance and drainage. The step(s) shall be a bolt-on design and provide an 18.50" wide x 5.00" deep stepping surface.</p> <p>The step(s) shall be located under passenger side running board..</p> <p>The stirrup step(s) shall be lit by a white 12 volt DC LED light provided on the step.</p> <p>The additional step(s) lights shall be activated by the same means as the standard step lights.</p>		

	Bidder Complies	
	Yes	No
<p><u>PUMP</u></p> <p>Pump shall be a 2000 gpm single (1) stage midship mounted centrifugal type.</p> <p>Pump shall be the class "A" type.</p> <p>Pump shall deliver the percentage of rated discharge at pressures indicated below:</p> <ul style="list-style-type: none"> - 100% of rated capacity at 150 psi net pump pressure. -70% of rated capacity at 200 psi net pump pressure. -50% of rated capacity at 250 psi net pump pressure. <p>Pump body shall be close-grained gray iron, bronze fitted, and horizontally split in two (2) sections for easy removal of the entire impeller shaft assembly (including wear rings).</p> <p>Pump shall be designed for complete servicing from the bottom of the truck, without disturbing the pump setting or apparatus piping.</p> <p>Pump case halves shall be bolted together on a single horizontal face to minimize a chance of leakage and facilitate ease of reassembly. No end flanges shall be used.</p> <p>Discharge manifold of the pump shall be cast as an integral part of the pump body assembly and shall provide a minimum of three (3) 3.50" openings for flexibility in providing various discharge outlets for maximum efficiency.</p> <p>The three (3) 3.50" openings shall be located as follows: one (1) outlet to the right of the pump, one (1) outlet to the left of the pump, and one (1) outlet directly on top of the discharge manifold.</p> <p>Impeller shaft shall be stainless steel, accurately ground to size. It shall be supported at each end by sealed, anti-friction ball bearings for rigid precise support. Impeller shall have flame plated hubs assuring maximum pump life and efficiency despite any presence of abrasive matter in the water supply.</p> <p>Bearings shall be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. No special or sleeve type bearings shall be used.</p> <p>Pump shall be equipped with a self-adjusting, maintenance-free, mechanical shaft seal.</p> <p>The mechanical seal shall consist of a flat, highly polished, spring fed carbon ring that rotates with the impeller shaft. The carbon ring shall press against a highly polished stainless steel stationary ring that is sealed within the pump body.</p> <p>In addition, a throttling ring shall be pressed into the steel chamber cover, providing a very small clearance around the rotating shaft in the event of a mechanical seal failure. The pump</p>		

	Bidder Complies	
	Yes	No
<p>performance shall not deteriorate, nor shall the pump lose prime, while drafting if the seal fails during pump operation.</p> <p>Wear rings shall be bronze and easily replaceable to restore original pump efficiency and eliminate the need to replace the entire pump casing due to wear.</p> <p><u>PUMP TRANSMISSION</u></p> <p>The pump transmission shall be made of a three (3) piece, aluminum, horizontally split casing. Power transfer to pump shall be through a high strength Morse HY-VO silent drive chain. By the use of a chain rather than gears, 50% of the sprocket shall be accepting or transmitting torque, compared to two (2) or three (3) teeth doing all the work.</p> <p>Drive shafts shall be 2.35" diameter hardened and ground alloy steel and supported by ball bearings. The case shall be designed to eliminate the need for water cooling.</p> <p><u>PUMPING MODE</u></p> <p>An interlock system shall be provided to ensure that the pump drive system components are properly engaged so that the apparatus can be safely operated. The interlock system shall be designed to allow stationary pumping only.</p> <p><u>AIR PUMP SHIFT</u></p> <p>Pump shift engagement shall be made by a two (2) position sliding collar, actuated pneumatically (by air pressure), with a three (3) position air control switch located in the cab. A manual back-up shift control shall also be located on the left side pump panel.</p> <p>Two (2) indicator lights shall be provided adjacent to the pump shift inside the cab. One (1) green light shall indicate the pump shift has been completed and be labeled "pump engaged". The second green light shall indicate when the pump has been engaged, and that the chassis transmission is in pump gear. This indicator light shall be labeled "OK to pump".</p> <p>Another green indicator light shall be installed adjacent to the hand throttle on the pump panel and indicate either the pump is engaged and the road transmission is in pump gear, or the road transmission is in neutral and the pump is not engaged. This indicator light shall be labeled "Warning: Do not open throttle unless light is on".</p> <p>The pump shift shall be interlocked to prevent the pump from being shifted out of gear when the chassis transmission is in gear to meet NFPA requirements.</p> <p>The pump shift control in the cab shall be illuminated to meet NFPA requirements.</p> <p><u>TRANSMISSION LOCK-UP</u></p> <p>The direct gear transmission lock-up for the fire pump operation shall engage automatically when the pump shift control in the cab is activated.</p>		

	Bidder Complies	
	Yes	No
<p><u>AUXILIARY COOLING SYSTEM</u></p> <p>A supplementary heat exchange cooling system shall be provided to allow the use of water from the discharge side of the pump for cooling the engine water. Heat exchanger shall be cylindrical type and shall be a separate unit. It shall be installed in the pump or engine compartment with the control located on the pump operator's control panel. Exchanger shall be plumbed to the master drain valve.</p> <p><u>INTAKE RELIEF VALVE</u></p> <p>A relief valve shall be installed on the suction side of the pump preset at 125 psig.</p> <p>Relief valve shall have a working range of 75 psig to 250 psig.</p> <p>Outlet shall terminate below the frame rails with a 2.50" National Standard hose thread adapter and shall have a "do not cap" warning tag.</p> <p>Control shall be located behind an access door at a side pump panel.</p> <p><u>PRESSURE CONTROLLER</u></p> <p>A pressure governor shall be provided.</p> <p>A pressure transducer shall be installed in the water discharge manifold on the pump.</p> <p>The display panel shall be located at the pump operator's panel.</p> <p><u>PRIMING PUMP</u></p> <p>The priming pump shall be a compressed air powered, high efficiency, multistage venturi based priming system, conforming to standards outlined in the current edition of NFPA 1901.</p> <p>All wetted metallic parts of the priming system are to be of brass and stainless steel construction.</p> <p>One (1) priming control shall open the priming valve and start the pump primer.</p> <p><u>PUMP MANUALS</u></p> <p>There shall be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals shall be provided by the pump manufacturer in the form of two (2) CDs. Each manual shall cover pump operation, maintenance, and parts.</p> <p><u>PLUMBING, STAINLESS STEEL AND HOSE</u></p> <p>All inlet and outlet lines shall be plumbed with either stainless steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hose's shall be equipped with brass or stainless steel couplings. All stainless steel hard plumbing shall be a minimum of a schedule 10 wall thickness.</p>		

	Bidder Complies	
	Yes	No
<p>Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping shall be equipped with victaulic or rubber couplings.</p> <p>Plumbing manifold bodies shall be ductile cast iron or stainless steel.</p> <p>All piping lines are to be drained through a master drain valve or shall be equipped with individual drain valves. All drain lines shall be extended with a hose to drain below the chassis frame.</p> <p>All water carrying gauge lines shall be of flexible polypropylene tubing.</p> <p>All piping, hose and fittings shall have a minimum of a 500 PSI hydrodynamic pressure rating.</p> <p><u>MAIN PUMP INLETS</u></p> <p>A 6.00" pump manifold inlet shall be provided on each side of the vehicle. The suction inlets shall include screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.</p> <p><u>MAIN PUMP INLET CAP</u></p> <p>The main pump inlets shall have National Standard Threads with a long handle chrome cap.</p> <p>The cap shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).</p> <p><u>VALVES</u></p> <p>All discharges shall use in-line ball valves.</p> <p><u>LEFT SIDE INLET</u></p> <p>There shall be one (1) auxiliary inlet with a 2.50" valve at the left side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.</p> <p>The auxiliary inlet shall be provided with a strainer, chrome swivel and plug.</p> <p><u>RIGHT SIDE INLET</u></p> <p>There shall be one (1) auxiliary inlet with a 2.50" valve at the right side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.</p> <p>The auxiliary inlet shall be provided with a strainer, chrome swivel and plug.</p> <p>The location of the valve for the two (2) inlets shall be recessed behind the pump panel.</p> <p><u>INLET CONTROL</u></p> <p>The side auxiliary inlet(s) shall incorporate a quarter-turn ball valve with the control located at the inlet valve. The valve operating mechanism shall indicate the position of the valve.</p>		

	Bidder Complies	
	Yes	No
<p><u>INLET BLEEDER VALVE</u></p> <p>A 0.75" bleeder valve shall be provided for each side gated inlet. The valves shall be located behind the panel with a swing style handle control extended to the outside of the panel. The handles shall be chrome plated and provide a visual indication of valve position. The swing handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders shall be routed below the chassis frame rails.</p> <p><u>TANK TO PUMP</u></p> <p>The booster tank shall be connected to the intake side of the pump with heavy duty piping and a quarter turn 3.00" full flow line valve with the control remotely located at the operator's panel. Tank to pump line shall run straight (no elbows) from the pump into the front face of the water tank and angle down into the tank sump. A rubber coupling shall be included in this line to prevent damage from vibration or chassis flexing.</p> <p>A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.</p> <p><u>TANK REFILL</u></p> <p>A 1.50" combination tank refill and pump re-circulation line shall be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.</p> <p><u>LEFT SIDE DISCHARGE OUTLETS</u></p> <p>There shall be two (2) discharge outlets with a 2.50" valve on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.</p> <p><u>RIGHT SIDE DISCHARGE OUTLETS</u></p> <p>There shall be one (1) discharge outlet with a 2.50" valve on the right side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.</p> <p>There shall be a 4.00" discharge outlet with a 3.00" valve with a 3.00" ball, installed on the right side of the apparatus, terminating with a 4.00" (M) National Standard hose thread adapter. This discharge outlet shall be actuated with a handwheel control with position indicator at the pump operator's control panel.</p> <p><u>DISCHARGE CAPS</u></p> <p>Chrome plated, rocker lug, caps with chains shall be furnished for all side discharge outlets.</p> <p>The cap shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).</p>		

	Bidder Complies	
	Yes	No
<p><u>OUTLET BLEEDER VALVE</u></p> <p>A 0.75" bleeder valve shall be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.</p> <p>The valves shall be located behind the panel with a swing style handle control extended to the outside of the side pump panel. The handles shall be chrome plated and provide a visual indication of valve position. The swing handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders shall be located at the bottom of the pump panel. They shall be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders shall be routed below the chassis frame rails.</p> <p><u>LEFT SIDE OUTLET EBLAWS</u></p> <p>The one (1) discharge outlet, located on the left side pump panel, shall be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) CSA, chrome plated, 30 degree elbow.</p> <p>The elbow shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).</p> <p><u>RIGHT SIDE OUTLET ELBOWS</u></p> <p>The one (1) discharge outlet, located on the right side pump panel, shall be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) CSA, chrome plated, 30 degree elbow.</p> <p>The elbow shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).</p> <p><u>ADDITIONAL RIGHT SIDE OUTLET ELBOWS</u></p> <p>The 4.00" outlet shall be furnished with a 4.00" (F) National Standard hose thread x 5.00" Storz elbow adapter with Storz cap.</p> <p><u>ADAPTER</u></p> <p>There shall be two (2) adapters with 1.50" FNST X NPSH. These adapters shall be installed on CROSSLAYS.</p> <p><u>DISCHARGE OUTLET CONTROLS</u></p> <p>The discharge outlets shall incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism shall indicate the position of the valve.</p> <p>If a handwheel control valve is used, the control shall be a minimum of a 3.9" diameter stainless steel handwheel with a dial position indicator built in to the center of the handwheel.</p>		

	Bidder Complies	
	Yes	No
<p><u>AERIAL OUTLET</u></p> <p>The aerial waterway shall be plumbed from the pump to the water tower line with 5.00" pipe and a 3.50" valve. The control for the waterway valve shall be located at the pump operator's panel.</p> <p>A pin indicator shall be provided to show when the valve is in the "open" or "closed" position.</p> <p><u>CROSSLAY HOSE BEDS</u></p> <p>Two (2) crosslays with 1.50" outlets shall be provided. Each bed to be capable of carrying 200' of 1.75" double jacketed hose and shall be plumbed with 2.00" i.d. pipe and gated with a 2.00" quarter turn ball valve.</p> <p>Outlets to be equipped with a 1.50" National Standard hose thread 90 degree swivel located in the hose bed so that hose may be removed from either side of apparatus.</p> <p>The crosslay controls shall be at the pump operator's panel.</p> <p>The center crosslay dividers shall be fabricated of 0.25" aluminum and shall provide adjustment from side to side. The divider shall be unpainted with a brushed finish.</p> <p>Vertical scuffplates constructed of stainless steel shall be provided at the front and rear ends of the bed on each side of vehicle.</p> <p>Crosslay bed flooring shall consist of removable perforated brushed aluminum.</p> <p><u>CROSSLAY/DEADLAY HOSE RESTRAINT</u></p> <p>Elastic netting shall be provided across the top and ends of three (3) crosslay/deadlay opening(s) to secure the hose during travel. The netting shall be permanently attached at the top center of the crosslay/deadlay bed and removable on each end.</p> <p><u>FOAM CONCENTRATE PROPORTIONING SYSTEM PLUMBING (FUTURE INSTALL)</u></p> <p>A foam manifold shall be provided for the future installation of a foam system. The foam system shall be plumbed to provisions for future installed foam system discharges. The discharges capable of dispensing foam shall be foam provisions for the three crosslays.</p> <p>A manifold shall be provided for the foam ready discharges. The plumbing from the water pump to the foam manifold shall be designed to allow the foam system to be added without unnecessary rework.</p> <p>Space shall be provided on the pump panel for the possible addition of the foam system controls.</p> <p><u>FOAM TANK</u></p> <p>The foam tank shall be an integral portion of the polypropylene water tank. The cell shall have a capacity of 20 gallons of foam with the intended use of Class A foam. The foam cell shall not</p>		

	Bidder Complies	
	Yes	No
<p>reduce the capacity of the water tank. The foam cell shall have a screen in the fill dome and a breather in the lid.</p> <p><u>FOAM TANK DRAIN</u></p> <p>The foam tank drain shall be a 1.00" drain valve located inside the pump compartment accessible through a door on the passenger's side pump panel.</p> <p><u>PUMP COMPARTMENT</u></p> <p>The pump compartment shall be separate from the hose body and compartments so that each may flex independently of the other. The pump compartment shall be constructed of the same material as the body compartmentation.</p> <p>The pump compartment substructure shall be a fabricated assembly of steel tubing, angles and channels which supports both the fire pump and the side running boards.</p> <p>The pump compartment shall be mounted on the chassis frame rails with rubber biscuits in a four point pattern to allow for chassis frame twist.</p> <p>Pump compartment, pump, plumbing and gauge panels shall be removable from the chassis in a single assembly.</p> <p><u>PUMP MOUNTING</u></p> <p>Pump shall be mounted to a substructure which shall be mounted to the chassis frame rail using rubber isolators. The mounting shall allow chassis frame rails to flex independently without damage to the fire pump.</p> <p><u>PUMP CONTROL PANELS (LEFT SIDE CONTROL)</u></p> <p>All pump controls and gauges shall be located at the left (driver's) side of the apparatus and properly identified.</p> <p>Layout of the pump control panel shall be ergonomically efficient and systematically organized.</p> <p>The pump operator's control panel shall be removable in two (2) main sections for ease of maintenance:</p> <p>The upper section shall contain sub panels for the mounting of the pump pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable). Sub panels shall be removable from the face of the pump panel for ease of maintenance. Below the sub panels shall be located all valve controls and line pressure gauges.</p> <p>The lower section of the panel shall contain all inlets, outlets, and drains.</p> <p>All push/pull valve controls shall have 1/4 turn locking control rods with polished chrome plated zinc tee handles. Guides for the push/pull control rods shall be chrome plated zinc castings</p>		

	Bidder Complies	
	Yes	No
<p>securely mounted to the pump panel. Push/pull valve controls shall be capable of locking in any position. The control rods shall pull straight out of the panel and shall be equipped with universal joints to eliminate binding.</p> <p><u>IDENTIFICATION TAGS</u></p> <p>The identification tag for each valve control shall be recessed in the face of the tee handle.</p> <p>All discharge outlets shall have color coded identification tags, with each discharge having its own unique color. Color coding shall include the labeling of the outlet and the drain for each corresponding discharge.</p> <p>All line pressure gauges shall be mounted directly above the corresponding discharge control tee handles and recessed within the same chrome plated casting as the rod guide for quick identification. The gauge and rod guide casting shall be removable from the face of the pump panel for ease of maintenance. The casting shall be color coded to correspond with the discharge identification tag.</p> <p>All remaining identification tags shall be mounted on the pump panel in chrome plated bezels.</p> <p>The pump panel on the right (passenger's) side shall be removable with lift and turn type fasteners.</p> <p>Trim rings shall be installed around all inlets and outlets.</p> <p>The trim rings for the side discharge outlets shall be color coded and labeled to correspond with the discharge identification tag.</p> <p><u>PUMP PANEL CONFIGURATION</u></p> <p>The pump panel configuration shall be arranged and installed in an organized manner that shall provide user-friendly operation.</p> <p><u>PUMP OPERATOR'S PLATFORM</u></p> <p>A pull out, flip down platform shall be provided at the pump operator's control panel.</p> <p>The front edge and the top surface of the platform shall be made of DA finished aluminum with a Morton Cass insert.</p> <p>The platform shall be approximately 13.75" deep when in the stowed position and approximately 22.00" deep when extended. The platform shall be 35.00" wide. The platform shall lock in the retracted and the extended position.</p> <p>The platform shall be wired to the "step not stowed" indicator in the cab.</p>		

	Bidder Complies	
	Yes	No
<p><u>PUMP OPERATOR'S PLATFORM PERIMETER LIGHT</u></p> <p>There shall be a 20.00" white 12 volt DC LED strip light provided to illuminate the ground area.</p> <p><u>PUMP AND GAUGE PANEL</u></p> <p>The pump and gauge panels shall be constructed of aluminum with a black vinyl finish. A polished aluminum trim molding shall be provided around each panel.</p> <p>The passenger's side pump panel shall be removable and fastened with swell type fasteners.</p> <p><u>PUMP COMPARTMENT LIGHT</u></p> <p>There shall be two (2) 3.00" white 12 volt DC LED light(s) with flange(s) installed in the pump compartment.</p> <p>There shall be a switch accessible through a door on the pump panel included with this installation.</p> <p>Engine monitoring graduated LED indicators shall be incorporated with the pressure controller.</p> <p>Also provided at the pump panel shall be the following:</p> <ul style="list-style-type: none"> - Master Pump Drain Control <p><u>VACUUM AND PRESSURE GAUGES</u></p> <p>The pump vacuum and pressure gauges shall be liquid filled.</p> <p>The gauges shall be a minimum of 4.00" in diameter and shall have white faces with black markings, with a pressure range of 30.00" 0-400 psi/kpa.</p> <p>Gauge construction shall include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.</p> <p>The pump pressure and vacuum gauges shall be installed adjacent to each other at the pump operator's control panel.</p> <p>Test port connections shall be provided at the pump operator's panel. One (1) shall be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They shall have 0.25 in. standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They shall be marked with a label.</p> <p>This gauge shall include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.</p> <p><u>PRESSURE GAUGES</u></p> <p>The individual "line" pressure gauges for the discharges shall be fluid filled.</p>		

	Bidder Complies	
	Yes	No
<p>They shall be a minimum of 2.00" in diameter and the dial shall have white faces with black markings.</p> <p>Gauge construction shall include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.</p> <p>Gauges shall have a pressure rating of 0-400 psi/kpa.</p> <p>The individual pressure gauge shall be installed as close to the outlet control as practical.</p> <p>This gauge shall include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.</p> <p><u>WATER LEVEL GAUGE</u></p> <p>There shall be an electronic water level gauge provided on the operator's panel that registers water level by means of five (5) colored LED lights. The lights shall be durable, ultra-bright five (5) LED design viewable through 180 degrees. The water level indicators shall be as follows:</p> <ul style="list-style-type: none"> • 100 percent = Green • 75 percent = Yellow • 50 percent = Yellow • 25 percent = Yellow • Refill = Red <p>The light shall flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights shall flash sequentially when the water tank is empty.</p> <p>The level measurement shall be based on the sensing of head pressure of the fluid in the tank.</p> <p>The display shall be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components. The encapsulated design shall provide complete protection from water and environmental elements. An industrial pressure transducer shall be mounted to the outside of the tank. The field calibratable display measures head pressure to accurately show the tank level.</p> <p><u>FUTURE FOAM LEVEL GAUGE</u></p> <p>Provision shall be provided in the foam cell for the future addition of a foam system and level gauge.</p> <p><u>LIGHT SHIELD</u></p> <p>There shall be a polished, 16 gauge stainless steel light shield installed over the pump operator's panel.</p>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> • There shall be 12 volt DC white LED lights installed under the stainless steel light shield to illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus. These lights shall be activated by the pump panel light switch. Additional lights shall be included every 18.00" depending on the size of the pump house. • One (1) pump panel light shall come on when the pump is in ok to pump mode. <p>There shall be a light activated above the pump panel light switch when the parking brake is set. This is to afford the operator some illumination when first approaching the control panel.</p> <p>There shall be a green pump engaged indicator light activated on at the operator's panel when the pump is shifted into gear from inside the cab.</p> <p><u>AIR HORN SYSTEM</u></p> <p>There shall be two (2) air horns recessed in the front bumper. The horn system shall be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve shall be installed in-line to prevent loss of air in the air brake system.</p> <p><u>Air Horn Location</u></p> <p>The air horns shall be located on each side of the bumper, towards the outside.</p> <p><u>AIR HORN CONTROL</u></p> <p>The air horns shall be actuated by a chrome push button located on the officer's side of the engine tunnel and by the horn button in the steering wheel. The driver shall have the option to control the air horns or the chassis horns from the horn button by means of a selector switch located on the instrument panel.</p> <p><u>ELECTRONIC SIREN</u></p> <p>There shall be a 100 or 200 watt electronic siren with a plug-in noise canceling microphone shall be provided.</p> <p>This siren to be active when the battery switch is on and that emergency master switch is on.</p> <p>Electronic siren head shall be recessed in the overhead console above the engine tunnel on the driver side.</p> <p>Siren to be actuated by one (1) foot switch located on the officer's side.</p> <p><u>SPEAKER</u></p> <p>There shall be one (1) speaker provided. Each speaker shall be a black nylon composite, 100-watt, with through bumper mounting brackets and polished stainless steel grille. Each speaker shall be connected to the siren amplifier.</p>		

	Bidder Complies	
	Yes	No
<p>The speaker(s) shall be recessed in the center of the front bumper.</p> <p><u>AUXILIARY MECHANICAL SIREN</u></p> <p>A mechanical siren shall be furnished. A siren brake button shall be installed on the switch panel.</p> <p>The control solenoid shall be powered up after the emergency master switch is activated.</p> <p>The mechanical siren shall be mounted on the bumper deck plate. It shall be mounted on the left side A reinforcement plate shall be furnished to support the siren.</p> <p><u>MECHANICAL SIREN CONTROL</u></p> <p>The mechanical siren shall be actuated by a push button located on the officer's side instrument panel and by a foot switch on the driver's side.</p> <p><u>FRONT ZONE UPPER WARNING LIGHTS</u></p> <p>There shall be two (2) 21.50" LED lightbars mounted on the cab roof, one (1) on each side, above the driver's and passenger's door, at a 30 degree angle.</p> <p>The driver's side lightbar shall include the following:</p> <ul style="list-style-type: none"> • One (1) red flashing LED module in the outside end position. • One (1) red flashing LED module in the outside front corner position. • One (1) red flashing LED module in the outside front position. • One (1) red flashing LED module in the inside front position. • One (1) red flashing LED module in the inside front corner position. <p>The passenger's side lightbar shall include the following:</p> <ul style="list-style-type: none"> • One (1) red flashing LED module in the inside front corner position. • One (1) red flashing LED module in the inside front position. • One (1) red flashing LED module in the outside front position. • One (1) red flashing LED module in the outside front corner position. • One (1) red flashing LED module in the outside end position. <p>There shall be clear lenses included on the lightbar.</p> <p>There shall be a switch in the cab on the switch panel to control the lightbars.</p> <p><u>FRONT ZONE UPPER LIGHTING, PLATFORM</u></p> <p>Four (4) red LED flashing warning lights that include a chrome flange shall be located at the front of the platform basket.</p> <p>All of the above lights shall include a clear lens</p>		

	Bidder Complies	
	Yes	No
<p>The lights shall be controlled by the same switch as the lightbars.</p> <p>These lights shall be deactivated when the boom is lifted out of the cradle.</p> <p><u>ADDITIONAL WARNING LIGHTS</u></p> <p>There shall be two (2) LED flashing warning light(s) that include a chrome flange, located on the basket, on side of platform basket, front lower corner, one each side..</p> <p>The color of these lights shall be red and include a lens that is clear.</p> <p>The light(s) shall be activated with the roof light switch and be deactivated when the boom is lifted out of the cradle.</p> <p>The additional warning light(s) may be load managed if colored or shall be deactivated if white, when the parking brake is set.</p> <p><u>CAB FACE WARNING LIGHTS</u></p> <p>There shall be four (4) LED flashing warning lights installed on the cab face, above the headlights, mounted in a common bezel.</p> <ul style="list-style-type: none"> • The driver's side front outside warning light to be red • The driver's side front inside warning light to be red • The passenger's side front inside warning light to be red • The passenger's side front outside warning light to be red <p>All four (4) lights shall include a clear lens.</p> <p>There shall be a switch located in the cab, on the switch panel, to control the four (4) lights.</p> <p>The inside lights may be load managed if colored or disabled if white, when the parking brake is set.</p> <p><u>HEADLIGHT FLASHER</u></p> <p>The high beam headlights shall flash alternately between the left and right side.</p> <p>There shall be a switch installed in the cab on the switch panel to control the high beam flash. This switch shall be live when the battery switch and the emergency master switches are on.</p> <p>The flashing shall automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.</p> <p><u>SIDE ZONE LOWER LIGHTING</u></p> <p>There shall be six (6) flashing LED warning lights with chrome trim installed per the following:</p> <ul style="list-style-type: none"> • Two (2) lights, one (1) each side on the bumper extension. The side front lights to be red. 		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> • Two (2) lights, one (1) each side above the front wheels. The side middle lights to be red. • Two (2) lights, one (1) each side above rear wheels. The side rear lights to be red. • The lights shall include clear lenses. <p>There shall be a switch in the cab on the switch panel to control the lights.</p> <p><u>REAR ZONE LOWER LIGHTING</u></p> <p>There shall be two (2) LED flashing warning lights located at the rear of the apparatus.</p> <ul style="list-style-type: none"> • The driver's side rear light to be red • The passenger's side rear light to be red <p>Both lights shall include a lens that is clear.</p> <p>There shall be a switch located in the cab on the switch panel to control the lights.</p> <p><u>REAR/SIDE ZONE UPPER WARNING LIGHTS</u></p> <p>There shall be two (2) LED warning beacons provided at the rear of the truck, located one (1) each side. There shall be a switch located in the cab on the switch panel to control the beacons.</p> <p>The color of the lights shall be red LEDs with both domes clear.</p> <p><u>TRAFFIC DIRECTING LIGHT</u></p> <p>There shall be one (1) 46.81" long x 2.84" high x 2.24" deep, amber LED traffic directing light installed at the rear of the apparatus.</p> <p>The control head shall be included with this installation.</p> <p>The auxiliary warning mode shall be activated with the control head only.</p> <p>This traffic directing light shall be mounted on top of the body below the turntable with a treadplate box at the rear of the apparatus.</p> <p>The traffic directing light control head shall be located in the driver side overhead switch panel in the right panel position.</p> <p><u>ELECTRICAL SYSTEM GENERAL DESIGN FOR ALTERNATING CURRENT</u></p> <p>The following guidelines shall apply to the 120/240 VAC system installation:</p> <p><u>General</u></p> <p>Any fixed line voltage power source producing alternating current (ac) line voltage shall produce electric power at 60 cycles plus or minus 3 cycles.</p>		

	Bidder Complies	
	Yes	No
<p>Except where superseded by the requirements of NFPA 1901, all components, equipment and installation procedures shall conform to NFPA 70, National Electrical Code (herein referred to as the NEC).</p> <p>Line voltage electrical system equipment and materials included on the apparatus shall be listed and installed in accordance with the manufacturer's instructions. All products shall be used only in the manner for which they have been listed.</p> <p><u>Grounding</u> Grounding shall be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems shall not be used. Only stranded or braided copper conductors shall be used for grounding and bonding.</p> <p>An equipment grounding means shall be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.</p> <p>The grounded current carrying conductor (neutral) shall be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor shall be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.</p> <p>In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor. This conductor shall have a minimum amperage rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor properly sized to meet the low voltage and line voltage requirements shall be permitted to be used.</p> <p>All power source system mechanical and electrical components shall be sized to support the continuous duty nameplate rating of the power source.</p> <p><u>Operation</u> Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, shall be permanently attached to the apparatus at any point where such operations can take place.</p> <p>Provisions shall be made for quickly and easily placing the power source into operation. The control shall be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train shall be equipped with a means to prevent the unintentional movement of the control device from its set position.</p>		

	Bidder Complies	
	Yes	No
<p>A power source specification label shall be permanently attached to the apparatus near the operator's control station. The label shall provide the operator with the information detailed in Figure 19-4.10.</p> <p>Direct drive (PTO) and portable generator installations shall comply with Article 445 (Generators) of the NEC.</p> <p><u>Overcurrent protection</u></p> <p>The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device shall not exceed 144.00" (3658 mm) in length.</p> <p>For fixed power supplies, all conductors in the power supply assembly shall be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degree Fahrenheit (90 degrees Celsius).</p> <p>For portable power supplies, conductors located between the power source and the line side of the main overcurrent protection device shall be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius).</p> <p><u>Wiring Methods</u></p> <p>Fixed wiring systems shall be limited to the following:</p> <ul style="list-style-type: none"> • Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius) • or • Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius) <p>Electrical cord or conduit shall not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring. In addition the wiring shall be run as follows.</p> <ul style="list-style-type: none"> • Separated by a minimum of 12.00" (305 mm), or properly shielded, from exhaust piping • Separated from fuel lines by a minimum of 6.00" (152 mm) distance <p>Electrical cord or conduit shall be supported within 6.00" (152 mm) of any junction box and at a minimum of every 24.00" (610 mm) of continuous run. Supports shall be made of nonmetallic materials or corrosion protected metal. All supports shall be of a design that does not cut or abrade the conduit or cable and shall be mechanically fastened to the vehicle.</p>		

	Bidder Complies	
	Yes	No
<p><u>Wiring Identification</u> All line voltage conductors located in the main panel board shall be individually and permanently identified. The identification shall reference the wiring schematic or indicate the final termination point. When prewiring for future power sources or devices, the unterminated ends shall be labeled showing function and wire size.</p> <p><u>Wet Locations</u> All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, shall be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC.</p> <p>All receptacles located in a wet location shall be not less than 24.00" (610 mm) from the ground. Receptacles on off-road vehicles shall be a minimum of 30.00" (762 mm) from the ground.</p> <p>The face of any wet location receptacle shall be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle shall be installed in a face up position.</p> <p><u>Dry Locations</u> All receptacles located in a dry location shall be of the grounding type. Receptacles shall be not less than 30.00" (762 mm) above the interior floor height.</p> <p>All receptacles shall be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps. If the receptacles are direct current, or other than single phase, they shall be so marked.</p> <p><u>Listing</u> All receptacles and electrical inlet devices shall be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards. Receptacles used for direct current voltages shall be rated for the appropriate service.</p> <p><u>Electrical System Testing</u> The wiring and associated equipment shall be tested by the apparatus manufacturer or the installer of the line voltage system.</p> <p>The wiring and permanently connected devices and equipment shall be subjected to a dielectric voltage withstand test of 900-volts for one (1) minute. The test shall be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit(s) closed. This test shall be conducted after all body work has been completed.</p> <p>Electrical polarity verification shall be made of all permanently wired equipment and receptacles to determine that connections have been properly made.</p>		

	Bidder Complies	
	Yes	No
<p><u>Operational Test per Current NFPA 1901 Standard</u></p> <p>The apparatus manufacturer shall perform the following operation test and ensure that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order. The test shall be witnessed and the results certified by an independent third-party certification organization.</p> <p>The prime mover shall be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating.</p> <p>The power source shall be operated at 100 percent of its nameplate voltage for a minimum of two (2) hours unless the system meets category certification as defined in the current NFPA 1901 standard.</p> <p>Where the line voltage power is derived from the vehicle's low voltage system, the minimum continuous electrical load as defined in the current NFPA 1901 standard shall be applied to the low voltage electrical system during the operational test.</p> <p><u>GENERATOR</u></p> <p>The apparatus shall be equipped with a complete electrical power system. The generator shall be a hydraulic unit. The wiring and generator installation shall conform to the present National Electrical Codes Standards of the National Fire Protection Association. The installation shall be designed for continuous operation without overheating and undue stress on components.</p> <p><u>Generator Performance</u></p> <ul style="list-style-type: none"> - Continuous Duty Rating: 10,000 watts - Nominal Volts: 120/240 - Amperage: 80 @ 120 volts, 40 @ 240 volts - Phase: Single - Cycles: 60 hertz - Engine Speed at Engagement: Idle - RPM range: 900 to 3,000 (hydraulic pump) <p>The output of the generator shall be controlled by an internal hydraulic system. An electrical instrument gauge panel shall be provided for the operator to monitor and control all electrical operations and output.</p>		

	Bidder Complies	
	Yes	No
<p>The generator shall be driven by a transmission power take off unit, through a hydraulic pump and motor.</p> <p>The generator shall include an electrical control inside the cab. The hydraulic engagement supply shall be operational at any time (no interlocks).</p> <p>An electric/hydraulic valve shall supply hydraulic fluid to the clutch engagement unit provided on the chassis PTO drive.</p> <p><u>Generator Instruments and Controls</u></p> <p>To properly monitor the generator performance a digital meter panel shall be furnished and mounted next to the circuit breaker panel. The meter shall indicate the following items:</p> <ul style="list-style-type: none"> - Voltage - Amperage for both lines - Frequency - Generator run hours - Over current indication - Over temperature indication - "Power On" indication - Two (2) fuse holders with two (2) amp fuses (for indicator light protection) <p>The meter and indicators shall be installed near eye level in the compartment. Instruments shall be flush mounted in an appropriate sized weatherproof electrical enclosure. All instruments used shall be accurate within +/- two (2) percent.</p> <p><u>Generator Wiring:</u></p> <p>The system shall be installed by highly qualified electrical technicians to assure the required level of safety and protection to the fire apparatus operators. The wiring, electrical fixtures and components shall be to the highest industry quality standards available on the domestic market. The equipment shall be the type as designed for mobile type installations subject to vibration, moisture and severe continuous usage. The following electrical components shall be the minimum acceptable quality standards for this apparatus:</p>		

	Bidder Complies	
	Yes	No
<p><u>Wiring:</u></p> <p>All electrical wiring shall be fine stranded copper type. The wire shall be sized to the load and circuit breaker rating; ten (10) gauge on 30 amp circuits, 12 gauge on 20 amp circuits and 14 gauge on 15 amp circuits. The cable shall be run in corner areas and extruded aluminum pathways built into the body for easy access.</p> <p><u>Load Center:</u></p> <p>The main load center shall include circuit breakers rated to load demand.</p> <p><u>Circuit Breakers:</u></p> <p>Individual breakers shall be provided for all on-line equipment to isolate a tripped breaker from affecting any other on-line equipment.</p> <p><u>GENERATOR LOCATION</u></p> <p>The generator shall be mounted in the in the area over the pump on the left side. The flooring in this area shall be either reinforced or constructed in such a manner that it shall handle the additional weight of the generator.</p> <p><u>GENERATOR START</u></p> <p>There shall be a switch provided on the cab instrument panel to engage the generator.</p> <p><u>GENERATOR REMOTE FIELD SWITCH</u></p> <p>A remote switch shall be provided in the cab switch panel to engage the field of the hydraulic generator. A light shall be provided to indicate that the generator field is active.</p> <p><u>CIRCUIT BREAKER PANEL</u></p> <p>The circuit breaker panel shall be located high on the forward wall of compartment D5.</p> <p><u>ELECTRIC CORD REEL</u></p> <p>Furnished with the 120/240 volt AC electrical system shall be cord reel. The reel shall be provided with a 12 volt electric rewind switch that is guarded to prevent accidental operation and labeled for its intended use. The switch shall be protected with a fuse and installed at a height not to exceed 72.00" above the operators standing position.</p> <p>The reel shall be capable holding 200' of 10/4, 600 volt cable.</p> <p>The exterior finish of the reel(s) shall be powder coated silver from the reel manufacturer.</p> <p>No guide is required on the reel assembly. A ball stop shall be provided to prevent the cord from being wound on the reel.</p>		

	Bidder Complies	
	Yes	No
<p>A label shall be provided in a readily visible location adjacent to the reel. The label shall indicate current rating, current type, phase, voltage and total cable length.</p> <p>A total of one (1) cord reel shall be provided one (1) above the pump area on the right side.</p> <p>The cord reel should be configured with four (4) conductors.</p> <p><u>CORD</u></p> <p>Provided for electric distribution shall be one (1) length installed on the reel of 200 feet of yellow 10/4 electrical cord. No connector, terminate each conductor with butt splice shall be installed on the end of the cord.</p> <p><u>REEL ENCLOSURE</u></p> <p>An aluminum treadplate enclosure shall be installed over the reel. The enclosure shall be provided with a stainless steel hinge that shall allow the cover to be opened.</p> <p>A captive roller assembly shall be provided to assist with the payout of the cord. A ball stop shall be provided on the cord to stop the cord at the roller assembly.</p> <p>A total of one (1) shall be installed over cord reel in cargo compartment above water pump, passenger side. Provide the captive roller assembly through the cargo side sheet..</p> <p><u>THREE SECTION 100' AERIAL PLATFORM</u></p> <p><u>GENERAL INFORMATION</u></p> <p>It is the intent of these specifications to describe a telescoping, elevating platform. The unit shall consist of a three (3) section, steel ladder with a self-leveling basket attached, to the ladder fly section.</p> <p><u>OPERATION ON GRADES</u></p> <p>The aerial unit shall be capable of operating safely, on any slope up to 10 degrees at full capacities. (Operation beyond this limit shall be at the operator's discretion.)</p> <p><u>CONSTRUCTION STANDARDS</u></p> <p>The ladder shall be constructed to meet all of the requirements as described in current NFPA 1901 standard.</p> <p>These capabilities shall be established in an unsupported configuration.</p> <p>All structural load supporting elements of the aerial device that are made of a ductile material shall have a design stress of not more than 50% of the minimum yield strength of the material based on the combination of the live load and the dead load. This 2:1 structural safety factor meets the current NFPA 1901 standard.</p>		

	Bidder Complies	
	Yes	No
<p>All structural load supporting elements of the aerial device that are made of non-ductile material shall have a design stress of not more than 20% of the minimum ultimate strength of the material, based on the combination of the rated capacity and the dead load. This 5:1 safety factor meets the current NFPA 1901 standard.</p> <p>The aerial device shall be capable of sustaining a static load one and one-half times its rated tip load capacity (live load) in every position in which the aerial device can be placed when the vehicle is on a firm level surface.</p> <p>The aerial device shall be capable of sustaining a static load one and one-third times its rated tip load capacity (live load) in every position the aerial device can be placed when the vehicle is on a slope of five degrees downward in the direction most likely to cause overturning.</p> <p>With the aerial device out of the cradle in the in the fully extended position at zero degrees elevation, a test load shall be applied in a horizontal direction normal to the centerline of the ladder. The turntable shall not rotate and the ladder shall not deflect beyond what the product specification allows.</p> <p>All welding shall be in compliance with the American Welding Society standards. All welding personnel shall be certified, as qualified under AWS welding codes.</p> <p>All material and welds shall have a structural safety factor of 2:1. This shall be derived from taking into account structure weight, payload, wind load, ice load, and nozzle reactions.</p> <p>The aerial device shall be capable of operating in wind conditions of up to 35 mph and icing conditions of up to a 0.25" coating over the aerial structure.</p> <p>All of the design criteria must be supported by the following test data:</p> <ul style="list-style-type: none"> - Strain gage testing of the complete aerial device - Analysis of deflection data taken while the aerial device was under test load <p>The following standards for materials are to be used in the design of the aerial device:</p> <ul style="list-style-type: none"> - Materials are to be certified by the mill that manufactured the material - Materials that are certified or recertified by vendors other than the mill shall not be acceptable - Material testing that is performed after the mill test shall be for verification only and not with the intent of changing the classification. 		

	Bidder Complies	
	Yes	No
<p><u>LADDER CONSTRUCTION</u></p> <p>The ladder shall be comprised of three (3) sections and shall extend to a nominal height, of 100' above the ground, as measured by 1901 recommendations. The ladder (handrails, baserails, trusses, k-braces and rungs) shall be constructed of welded, high strength steel certified by the manufacturer as being a minimum of 70,000 pounds per square inch of yield strength. Each section shall be trussed diagonally, vertical and horizontally using round steel tubing. All critical points shall be reinforced, for extra rigidity, and to provide a high strength-to-weight ratio. All ladder rungs shall be round and welded to each section in two (2) places with "K" bracing for lateral and torsional rigidity.</p> <p>The inside width dimensions of the ladder shall be:</p> <ul style="list-style-type: none"> -Base Section 38.75" -Mid Section 28.88" -Fly Section 21.50" <p>The height of the handrails above the centerline of the rungs shall be:</p> <ul style="list-style-type: none"> -Base Section 31.31" -Mid Section 26.82" -Fly Section 22.75" <p><u>VERTICAL HEIGHT</u></p> <p>The height of the unit shall extend to no less than 100', as measured by a plumb line from the top surface of the basket handrail assembly to the ground, with the basket raised to a 75 degree angle. The aerial device shall be measured, in this manner, for accurate comparison.</p> <p><u>HORIZONTAL REACH</u></p> <p>The rated horizontal reach shall be 93'. The measurement of horizontal reach shall be consistent with NFPA standards.</p> <p><u>MOUNTING OF ELEVATING PLATFORM</u></p> <p>The aerial device shall be rear mounted, to a torque box, on the truck chassis. Midship mounted aerial devices shall not be acceptable.</p> <p><u>TORQUE BOX</u></p> <p>A "torsion box" subframe shall be installed between the two sets of stabilizers. The torque box shall be constructed of 0.312" steel plate (50,000 pounds per square inch yield) with steel tubing reinforcement, on each side of the box, in the turntable area. The dimensions of the torque box shall be 41.00" wide x 29.00" high x 253.50" long. The torque box subframe assembly shall be</p>		

	Bidder Complies	
	Yes	No
<p>capable of withstanding all torsional and horizontal loads when the unit is on the stabilizers. The torque box shall be bolted to the chassis frame rails using thirty-two 0.750" SAE grade 8 bolts with nuts.</p> <p><u>TURNTABLE</u></p> <p>The turntable shall be a 1.00" thick steel deck, coated with a non-skid, chemical resistant material in the walking areas. The stepping surfaces shall meet the skid-resistance requirements of the current NFPA 1901 standard.</p> <p>The turntable shall measure 81.00" long x 96.00" wide. The turntable shall include an enclosure for the hydraulic valves and rotation motor, which shall also serve as a step, for access to the ladder.</p> <p>The turntable handrails shall be a minimum 42.00" high and shall not increase the overall travel height of the vehicle. The handrails shall be constructed from aluminum and have a slip resistant knurled surface.</p> <p><u>ELEVATION SYSTEM</u></p> <p>Two (2) double acting, lift cylinders shall be utilized to provide smooth, precise elevation from 5 degrees below horizontal to 75 degrees above horizontal. The lift cylinder shall be attached to each side of the base section. The lift cylinder rod shall be chrome plated, to provide smooth operation of the aerial and reduce seal wear. The lift cylinders shall be equipped with integral holding valves located in the cylinder, to prevent the unit from descending should the charged lines be severed, at any point within the hydraulic system and to maintain the ladder in the bedded position during road travel. The integral holding valves shall NOT be located in the transfer tubes.</p> <p>The elevation system shall be controlled by the microprocessor. The microprocessor shall provide the following features:</p> <ul style="list-style-type: none"> - Collision avoidance of the elevation system to prevent accidental body damage - Automatic deceleration when the aerial device is lowered into the cradle - Automatic deceleration at the end of stroke, in maximum raise and lower positions - Deceleration of the aerial device from 0 to -5 degrees <p><u>EXTENSION/RETRACTION SYSTEM</u></p> <p>A hydraulically powered, extension and retraction system shall be provided through dual hydraulic cylinders and wire ropes. Each set shall be capable of operating the ladder in the event of a failure, of the other. For safety, systems that use only a single extension/retraction system shall not be acceptable. The extension cylinder rod shall be chrome plated to provide smooth</p>		

	Bidder Complies	
	Yes	No
<p>operation of the aerial device and reduce seal wear. The extension/retraction cylinders shall be equipped, with integral holding valves, to prevent the unit from retracting should the charged line be severed, at any point within the hydraulic system. The integral holding valves shall NOT be located in the transfer tubes.</p> <p>Wire ropes and attaching systems used to extend and retract the fly sections shall have a 5:1 safety factor based on the ultimate strength under all operating conditions. The factor of safety for the wire rope shall remain above 2:1 during any extension or retraction stall. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used shall be 1:12. Wire ropes shall be constructed of seven (7) strands over an inner wire for increased flexibility. The wire rope shall be galvanized to reduce corrosion.</p> <p>The extension/retraction system shall be controlled by the microprocessor. The microprocessor shall provide the following features:</p> <ul style="list-style-type: none"> - Automatic deceleration at the end of stroke, in maximum extend and retract positions - Controls the rate of retraction while flowing water <p>All sheaves shall be greaseless and all sheave pins and pivot pins shall be polished stainless steel (no exception).</p> <p><u>ROTATION SYSTEM</u></p> <p>A 54.00" external tooth, monorace swing circle bearing shall be used for the rotation system and shall provide 360 degree continuous rotation. To insure proper bearing installation, both the open base bearing plate and the turntable bearing plate shall be milled surfaces. The bearing shall be bolted to the turntable and the base plate by a minimum of sixty grade 8, 0.88" bolts. Two (2) hydraulically driven, planetary gear boxes with drive speed reducers shall be used to provide infinite and minute rotation control throughout the entire rotational travel. Two (2) spring applied, hydraulically released disc type swing brakes shall be furnished to provide positive braking of the turntable assembly. Provisions shall be made for emergency operation of the rotation system should complete loss of normal hydraulic power occur. The hydraulic system shall be equipped with pressure relief valves which shall limit the rotational torque to a nondestructive power.</p> <p>The rotation system shall be controlled by the microprocessor. The microprocessor shall provide the following features:</p> <ul style="list-style-type: none"> - Envelope control of rotation system to prevent accidental body damage - Prevent the aerial from being rotated into an unstable condition 		

	Bidder Complies	
	Yes	No
<p><u>MANUAL OVERRIDE CONTROLS</u> Manual override controls shall be provided for all aerial and stabilizer functions.</p> <p><u>LADDER SLIDE MECHANISM</u> UHMW polyethylene wear pads shall be used between the telescoping ladder sections, to provide greater bearing surface area for load transfer. Adjustable slide pads shall also be used to control side play between the ladder sections.</p> <p><u>BASKET LEVELING SYSTEM</u> A basket leveling system shall be provided and so designed, that the basket with it's rated load, can be supported and maintained level, relative to the turntable, regardless of the elevation or flexion of the ladder.</p> <p>Basket leveling shall be accomplished by hydraulic circuitry, that is independent from the main hydraulic system. The leveling of the basket features a dual master/slave hydraulic cylinder system, with each side capable of supporting the load, while maintaining the basket level. Two (2) master cylinders are mounted between the turntable and the base ladder section, with two (2) slave cylinders mounted between the ladder fly section and the basket. The slave and master cylinders are 100% matched, so as the ladder is raised or lowered, exact amounts of hydraulic fluid are transferred between the master and slave cylinders thus maintaining the basket level.</p> <p>The hydraulic circuitry includes pressure operated counter balance valves, on the load side of the slave cylinders, to prevent the basket from tipping should the hydraulic lines be severed.</p> <p>A momentary switch is provided, on the cab instrument panel, to level the basket should this become necessary due to ambient temperature changes. It is not necessary to start the engine and activate the main hydraulic system to level the basket.</p> <p><u>ROTATION INTERLOCK</u> The microprocessor shall be used to prevent the rotation of the aerial device to the side in which the stabilizers have not been fully deployed (short-jacked). The microprocessor shall allow full and unrestricted use of the aerial, in the 180 degree area, on the side(s) where the stabilizers have been fully deployed. The system shall also have a manual override, to comply with NFPA 1901. SYSTEMS THAT PERMIT THE AERIAL TO ROTATE TO THE "SHORT JACK" SIDE, WITHOUT AUTOMATICALLY STOPPING THE ROTATION AND/OR WITHOUT ACTUATION OF THE "MANUAL OVERRIDE", SHALL NOT BE ACCEPTED. SYSTEMS THAT ONLY INCLUDE AN ALARM ARE NOT CONSIDERED AN INTERLOCK AND SHALL NOT BE ACCEPTED.</p>		

Bidder Complies	
Yes	No

LOAD CAPACITIES

The following load capacities shall be established with the stabilizers at full horizontal extension and placed in the down position to level the truck and to relieve the weight from the tires and axles. Capacities shall be based upon full extension and 360 degree rotation.

A load chart, visible at the operator's station, shall be provided. The load chart shall show the recommended safe load at any condition of the aerial device's elevation and extension (no exception).

35 MPH WIND CONDITIONS/DRY

Degrees of Elevation	-5 to 29	30 to 39	40 to 49	50 to 75
Basket	1000	1000	1000	1000
Fly	-	-	250	500
Mid	-	250	500	750
Base	250	500	750	1000

WATER TOWER OPERATION

The following capacities shall be based upon continuous 360 degree rotation and full extension.

35 MPH WIND CONDITIONS/WATER CHARGED

Degrees of Elevation	-5 to 29	30 to 39	40 to 49	50 to 75
Basket	500	500	500	500
Fly	-	-	250	500
Mid	-	250	500	500
Base	-	500	500	750

ELEVATION -5 TO +75 DEGREES

The aerial device shall be able to maintain the above load capacities while flowing up to 1500 GPM and a nozzle position of 0 to 90 degrees to either side of the ladder centerline, as far above and below horizontal to the platform as nozzle design allows.

While flowing 1500 to 2000 GPM the nozzle position shall be limited to 45 degrees either side of the ladder centerline horizontal to the platform, 30 degrees above horizontal, and as far below horizontal to the platform as nozzle design allows.

Reduced loads in the basket can be redistributed in 250 lb. increments to the fly, mid, or base as needed.

	Bidder Complies	
	Yes	No
<p><u>LADDER CRADLE INTERLOCK SYSTEM</u></p> <p>A ladder cradle interlock system shall be provided through the microprocessor to prevent the lifting of the aerial device from the nested position until the operator places all the stabilizers in a load supporting configuration. A switch shall be installed at the boom support to prevent operation of the stabilizers once the aerial has been elevated from the nested position.</p> <p><u>BOOM SUPPORT</u></p> <p>A heavy duty boom support, constructed of steel, is to be provided for support of the ladder in the travel position. The boom support shall be bolted to the chassis frame as close to the front axle as design allows. On the base section of the ladder, a stainless steel scuffplate shall be provided where the ladder comes into contact with the boom support.</p> <p><u>AERIAL BOOM SUPPORT LIGHT</u></p> <p>There shall be one (1) white LED strip light mounted on the boom support cradle. This light shall be activated when the aerial master switch is activated.</p> <p><u>FUTURE BOOM SUPPORT COMPARTMENT PROVISION</u></p> <p>There shall be 0.50" of wheelbase added to allow for a boom support compartment to be added at a future time.</p> <p>The boom support shall be located just to the rear of the chassis cab.</p> <p><u>AERIAL BOOM PANEL</u></p> <p>There shall be one boom panel provided on the driver's side of the aerial ladder base section. The boom panel shall be painted White #10.</p> <p>The boom panel shall be designed so no mounting bolts are in the face of the panel. This shall keep the lettering surface free of holes.</p> <p><u>AERIAL DEVICE RUNG COVERS</u></p> <p>Each rung shall be covered with a secure, heavy-duty, fiberglass pultrusion that incorporates an aggressive, no-slip coating.</p> <p>The rung covers shall be glued to each rung, and shall be easily replaceable should the rung cover become damaged.</p> <p>The center portion of each rung cover shall be black and the outside 2.00" edge at each side shall be safety yellow.</p> <p>Under no circumstances shall the rung covers be fastened to the rungs using screws or rivets (no exception).</p> <p>The rung covers shall have a 10-year, limited warranty.</p>		

Bidder Complies	
Yes	No

STOKES AND BRACKET STORAGE BOX

There shall be an aluminum storage box provided at the base section of the aerial ladder on the right side of the aerial device while viewed from the turntable. The box shall be painted to match the aerial device with the face of the box painted to match the boom sign color. The box shall be located in place of the aerial boom panel and have a hinged cover with rubber hood latches and gas shocks to secure the stokes basket and platform basket option brackets. The cover shall have the same finish as the box. A divider shall be provided to separate the stokes basket and the brackets. The box shall have no louvers.

The size of the stokes basket shall be 86.00" long x 24.00" wide x 8.00" high.

The maximum capacity of this box shall be 75 lb.

STABILITY TEST

An aerial stability test shall be run on this apparatus using the maximum weight allowance for tip options.

BASKET STRUCTURE

The complete basket structure shall be constructed of welded high strength steel certified by the manufacturer to have a minimum of 46,000 lb per square inch yield strength. Modular construction of the aerial platform basket shall allow for easy component replacement should the basket become damaged during use. The aerial basket shall be fully tested and independent third party certified.

The flooring and front decking of the basket shall be multi-piece Morton Cass material, preventing the accumulation of water on the standing surface. The floor shall measure approximately 34.00" long x 92.00" wide. The stepping surfaces shall meet the skid-resistance requirements of current NFPA 1901 standard.

The outside basket steps used for transferring in and out of the basket shall be at the same level as the basket floor. The steps on the front are approximately 16.00" deep. The front corners of the basket step shall be mitered at 45 degrees to allow the basket to be maneuvered closer to buildings when approaching at an angle. A heavy extruded rubber bumper strip shall be fastened to the outside edge of the step.

Four (4) stainless steel pompier belt safety loops shall be attached to the inside of the basket. Two (2) lifting eyes shall be provided on the bottom side of the basket support structure.

Two (2) rubber bumpers are provided on the bottom side of the basket structure for damage protection when setting it down on a surface.

The basket interior shall be illuminated as required per the current edition of NFPA 1901. All hoses and wiring at the basket shall be fully enclosed. Electrical sub-components shall be

	Bidder Complies	
	Yes	No
<p>mounted at the rear of the basket in a separate enclosure for easy servicing while maintaining an unobstructed basket interior.</p> <p><u>BASKET SIDES</u></p> <p>The sides of the basket shall be of solid single pan aluminum construction and, along with the basket doors, shall form a continuous 42.00" high wall around the basket. The modular design of the basket shall allow for easy replacement of components in case of damage.</p> <p><u>PLATFORM ENTRANCES/EXITS</u></p> <p>Two (2) swing-in, spring-loaded, self-closing double pan doors constructed of aluminum shall be provided at the front of the platform. The basket doors shall be provided with positive locking latches. The rear of the platform shall be equipped with a vertical self-closing gate for transfer to and from the platform's ladder device. Telescoping-type handrails shall be provided as a banister to bridge the gap between the platform and the fly section at all elevations.</p> <p><u>ACCESSORY MOUNTING RECEPTACLES</u></p> <p>Two (2) universal accessory mounting receptacles shall be permanently affixed on the front of the basket to receive options such as the rescue basket holders, rappelling arms, roof ladder brackets, winch, etc. Complete interchangeability shall be required without modification to the basket.</p> <p><u>HOSE BOX AT PLATFORM</u></p> <p>There shall be one (1) hose storage box(es) with a cover and rubber hood latch provided at the platform. The box(es) shall be located at the right side of the basket when viewed from the turntable and shall match the finish of the aerial device. The box(es) shall be sized to fit 100' of 1.75" diameter hose.</p> <p><u>LIGHTS FOR TURNTABLE WALKWAY</u></p> <p>There shall be white LED lights provided at the aerial turntable. The lights shall be located to illuminate the entire walking surface of the turntable including the area around the turntable console. These lights shall be activated by the aerial master switch.</p> <p><u>TURNTABLE CONSOLE LIGHTING</u></p> <p>There shall be one (1), white LED light strip mounted in the turntable console cover to illuminate the controls located on both the upper and lower portion of the turntable control station. These lights shall be activated by the aerial master switch.</p> <p><u>BASKET HEAT SHIELDS</u></p> <p>A heat reflective shield shall be provided on the front, sides and bottom of the basket.</p> <p>The double pan basket access doors shall form the heat shield at the front of the basket. The area between the access doors and behind the monitor(s) shall be shielded with a horizontally hinged</p>		

	Bidder Complies	
	Yes	No
<p>single pan aluminum fold down panel. The side heat shields shall be formed by a single sheet of .090" aluminum. These heat shields shall be painted to match the aerial device.</p> <p>Full under the basket heat shield protection with a non-glare finish shall be provided with dual swing-down doors for ease of servicing and clean out.</p> <p><u>ROTATION BEARING COVER</u></p> <p>An aluminum treadplate cover shall be fitted over the aerial rotation bearing and drive pinion gear(s). The cover shall be attached to the underside of the turntable deck.</p> <p><u>INFORMATION CENTER</u></p> <p>There shall be an information center provided. The information center shall operate in temperatures from -40 to 185 degrees Fahrenheit. The information center shall employ a Linux operating system and a 7.00" (diagonal measurement) LCD display. The LCD shall have a minimum 400nits rated, color display. The LCD shall be sunlight readable. The LCD display shall be encased in an ABS, black plastic housing with a gray decal. There shall be five (5), weather-resistant user interface switches provided. The LCD display can be changed to an available foreign language.</p> <p><u>OPERATION</u></p> <p>The information center shall be designed for easy operation in everyday use. There shall be a page button to cycle from one screen to the next screen in a rotating fashion. A video button shall allow an NTSC signal into the information center to be displayed on the LCD. If any button is pressed while viewing a video feed, the information center shall return to the vehicle information screens. There shall be a menu button to provide access to maintenance, setup, and diagnostic screens. All other button labels shall be specific to the information being viewed.</p> <p><u>GENERAL SCREEN DESIGN</u></p> <p>Where possible, background colors shall be used to provide vehicle information <i>At A Glance</i>. If the information provided on a screen is within acceptable limits, a green background color shall be used. If the information provided on a screen is not within acceptable limits, an amber background color shall indicate a caution condition and a red background color shall indicate a warning condition.</p> <p>Every screen in the information center shall include the aerial tip temperature, the time (12- or 24-hour mode) and a text Alert Center. The time shall be synchronized between all Command Zone color displays located on the vehicle. The Alert Center shall display text messages for audible alarms. The text messages shall identify any items causing the audible alarm to sound. If more than one (1) audible alarm is activated, the text message for each alarm shall cycle every second until the problems have been resolved. The background for the Alert Center shall change to indicate the severity of the warning message. Amber shall indicate a caution condition and</p>		

	Bidder Complies	
	Yes	No
<p>red shall indicate a warning condition. If a warning and a caution condition occur simultaneously, the red background color shall be shown for all Alert Center messages.</p> <p>A label shall be provided for each button. The label shall indicate the function for each active button for each screen. If the button is not utilized on specific screens, it shall have a button label with no text.</p> <p>Symbols shall accurately depict the aerial device type the information pertains to such as rear mount ladder, rear mount platform, mid-mount ladder or mid-mount platform.</p> <p><u>PAGE SCREENS</u></p> <p>The Information center shall include the following pages:</p> <p>The Aerial Main and Load Chart page shall indicate the following information:</p> <ul style="list-style-type: none"> - Rungs Aligned and Rungs Not Aligned shall be indicated with text and respective green or red colored ladder symbols. - Ladder Elevation shall be indicated via a fire apparatus vehicle with ladder symbol with the degree of elevation indicated between the vehicle and ladder. - Water Flow (if applicable) shall be indicated via a water nozzle symbol and text indicating flow / time. - Breathing Air Levels shall be indicated via an air bottle symbol and text indicating the percent (%) of air remaining. A green bar graphs shown inside the bottle shall indicate oxygen levels above 20%. A red bar graph shall indicate oxygen levels at or below 20%. When oxygen levels are at or below 10% the red bar graph shall flash. - The Aerial Load Chart shall indicate the load limit on each section of the ladder based on actual ladder position and water flow (if applicable). - <i>At A Glance</i> color features shall be utilized on this screen. Caution type conditions shall be indicated via a yellow background. Warning type conditions shall be indicated via a red background. Conditions operating within acceptable limits shall be indicated via a green background. <p>The Aerial Reach and Hydraulic Systems page shall indicate the following information:</p> <ul style="list-style-type: none"> - Aerial Hydraulic Oil Temperature shall be indicated with symbol and text. At a glance features shall be utilized. - Aerial Hydraulic Oil Pressure shall be indicated with a symbol and text. At a glance features shall be utilized. 		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> - The following calculations shall be indicated on a representative vehicle symbol: - Aerial Device Extension length. - Aerial Device Height indicating the height of the aerial device tip from the ground. - Aerial Device Reach indicating the horizontal distance the aerial reaches from the turntable. - Aerial Device Angle indicating the angle from the vehicle which the device is at. - <i>At A Glance</i> color features shall be utilized on this screen. Caution type conditions shall be indicated via a yellow background. Warning type conditions shall be indicated via a red background. Conditions operating within acceptable limits shall be indicated via a green background. <p>The Level Vehicle page shall indicate the following information:</p> <ul style="list-style-type: none"> - The grade of the vehicle shall be indicated via a fire apparatus vehicle symbol with the degree of grade shown in text format. The symbol shall tilt dependent on the vehicle grade. - The slope of the vehicle shall be indicated via a fire apparatus vehicle symbol with the degree of slope shown in text format. The symbol shall tilt dependent on the vehicle slope. - Outriggers status shall be indicated via a colored symbol for each outrigger present. Each outrigger status shall be defined as one of the following: <ul style="list-style-type: none"> - Outrigger stowed indicated with a silver pan located close to the vehicle - Outrigger fully extended indicated with a fully deployed green outrigger - Outrigger short-jacked indicated by a yellow outrigger partially deployed - Outrigger not set indicated by a red outrigger that is not set on the ground - A text box located on the vehicle symbol shall be utilized to identify the overall status of the outrigger leveling system. The following status shall be indicated in the text box: <ul style="list-style-type: none"> - Deployed status shall indicate all outriggers are properly set on the ground at full extension - Shortjacked status shall indicate one or more outriggers are set on the ground but not fully extended. - Not Set status shall indicate one or more outriggers is not properly set on the ground. - Stowed status shall indicate all outriggers are stowed for vehicle travel. 		

	Bidder Complies	
	Yes	No
<p>- A bedding assist alert shall indicate that the aerial device is being aligned by the Command Zone system as the operator lowers the aerial device into the cradle with the joystick.</p> <p>- <i>At A Glance</i> color features shall be utilized on this screen. Caution type conditions shall be indicated via a yellow background. Warning type conditions shall be indicated via a red background. Conditions operating within acceptable limits shall be indicated via a green background.</p> <p><u>MENU SCREENS</u></p> <p>The following screens shall be available through the Menu button:</p> <p>The View System Information screen shall display aerial device hours, aerial PTO hours, ladder aligned for stowing, aerial rotation angle, total water flow (if applicable), and aerial waterway valve status (if applicable).</p> <p>The Set Display Brightness screen shall allow brightness increase and decrease and include a default setting button.</p> <p>The Configure Video Mode screen shall allow setting of video contrast, video color and video tint.</p> <p>The Set Startup screen allows setting of the screen that shall be active at vehicle power-up.</p> <p>The Set Date and Time screen has a 12- or 24-hour format, and allows setting of the time and date.</p> <p>The View Active Alarms screen shows a list of all active alarms including the date and time of each alarm occurrence and shows all alarms that are silenced.</p> <p>The System Diagnostics screen allows the user to view system status for each module and it's respective inputs and outputs. Viewable data shall include the module type and ID number; the module version; and module diagnostics information including input or output number, the circuit number connected to that input or output, the circuit name (item connected to the circuit), status of the input or output, and other module diagnostic information.</p> <p>Aerial Calibrations screen indicates items that may be calibrated by the user and instructions to follow for proper calibration of the aerial device.</p> <p>Button functions and button labels may change with each screen.</p> <p><u>LOWER CONTROL STATION</u></p> <p>A lower control station shall be located at the rear of the apparatus in an easily accessible area. The controls and indication labels shall be illuminated for nighttime operation. The following</p>		

	Bidder Complies	
	Yes	No
<p>items shall be furnished at the lower control station and shall be clearly identified and conveniently located for ease of operation and viewing:</p> <ul style="list-style-type: none"> - Level assist switch - Override switch to override microprocessor - Emergency power unit switch <p><u>AERIAL DEVICE CONTROL STATIONS</u></p> <p>There shall be two (2) device control stations, one (1) shall be referred to as the basket control station and the other as the turntable control station. All elevation, extension and rotation controls shall operate from both of these locations. The controls shall permit the operator to regulate the speed of the aerial functions, within the safe limits, as determined by the manufacturer and NFPA standards. The controls shall be grouped and operate in an identical manner at both stations for similarity of operation. The controls shall be clearly marked and lighted for nighttime operation.</p> <p>Each control shall be equipped with a positive lock to hold the control in a neutral position, preventing accidental activation. In addition to the neutral lock, a console cover shall be provided at the turntable control station. The controls shall be so designed to allow the turntable control station to immediately override the basket controls, even if the ladder is being operated by the basket controls.</p> <p><u>TURNTABLE CONTROL STATION</u></p> <p>The turntable control station shall be located on the left side of the turntable so the operator may easily observe the basket while operating the controls.</p> <p>The following items shall be installed at the turntable control station, clearly identified and lighted for nighttime operation and conveniently located for ease of operation and viewing:</p> <ul style="list-style-type: none"> - Electric controls for elevation, rotation, extension/retraction - Intercom controls - Tip tracking light switch - Emergency power unit switch - Operator's load chart - A three (3) position switch for selecting aerial operational speed. 		

	Bidder Complies	
	Yes	No
<p><u>BASKET CONTROL CONSOLE</u></p> <p>The basket instrument panel shall be located at the front center of the aerial platform. The following controls shall be installed at the console and be clearly identified, illuminated for nighttime operation and conveniently located for ease of operation and viewing:</p> <ul style="list-style-type: none"> - Intercom controls - Operator's load chart <p><u>AERIAL FUNCTION CONTROLS</u></p> <p>The aerial function controls, elevation, rotation, extension/retraction shall be mounted in a separate control box, which shall be attached to the front of the platform control console by means of an easily removable slide mechanism. The aerial function control box shall have infinite positions along with three (3) fixed attachment points in the basket. The electrical connection shall be by a permanently attached, strain relieved, coiled cord. The legend for the control lever functions shall be illuminated.</p> <p><u>HIGH IDLE</u></p> <p>The high idle shall be controlled by the microprocessor. The microprocessor shall automatically adjust the engine rpm to compensate for the amount of load placed upon the system. The system shall include a safety device that allows activation of the high idle only when the parking brake is set and the transmission is placed in neutral.</p> <p><u>STABILIZERS</u></p> <p>Two (2) sets of extendible out and down "H" type stabilizers shall be provided for stability. The stabilizers shall have a spread of 18'.</p> <p>The stabilizers shall be the double box design, with jack cylinders, that have a 4.25" internal diameter (bore) and 3.00" diameter cylinder rod. The jack cylinders shall be equipped with integral holding valves, which shall hold the cylinder either in the stowed position or the working position, should a charged line be severed at any point within the hydraulic system. For safety, the integral holding valves shall be located in the cylinder base end, NOT in the transfer tube. Vertical jack cylinder rods shall be fully enclosed by a telescoping inner box to protect the cylinder rods against damage which may occur.</p> <p>The extension cylinders shall be totally enclosed within the extension beams. The horizontal extension cylinders shall be of the trombone type to eliminate wear and potential failure of hydraulic hoses (no exception).</p> <p>The stabilizers shall have the capability of 18.00" of ground penetration for set-up on uneven terrain. Extension of the horizontal beams shall be activated by an extension cylinder totally</p>		

	Bidder Complies	
	Yes	No
<p>enclosed within the extension beams. The cylinders shall be equipped with internal decelerators. The cross section dimensions shall be 13.00" high x 6.81" wide.</p> <p>Each stabilizer leg shall have attached to the end of the leg a 16 gauge polished stainless steel shield. The stainless steel shield shall be of the split-pan design and shall be a maximum 13.50" wide so as to allow the extension of the stabilizer between parked cars. This plate shall serve as a protective guard and a mounting surface for warning lights. The top, forward, and rear edges shall be flanged back for added strength.</p> <p><u>STABILIZER CONTROLS</u></p> <p>A portable stabilizer control box shall be provided. The control box shall be weatherproof and oil resistant. Each function and indicator light shall be labeled on a metal photo panel. The control box can be taken as far away as 15' from the vehicle with an extension cable.</p> <p>The stabilizer control box shall include the following:</p> <ul style="list-style-type: none"> - One (1) green power indicator light for stabilizer control that shall be illuminated when the aerial master and "PTO" switches in the cab are activated. - Four (4) electric toggle switches for stabilizers: each toggle switch shall control the extend/retract and raise/lower of its respective stabilizer to allow vehicle set up in restricted areas and/or on uneven surfaces. - Auto leveling assist switch: The outrigger control system shall incorporate a computerized self leveling system in addition to the standard outrigger controls. The operator shall have the option to manually or automatically level the truck. The computerized system shall ensure full outrigger extension, proper jack penetration, and shall level the vehicle within 1/2 a degree of level for safe operation of the aerial device. -One (1) electric toggle switch for the engaging the emergency power unit. - One (1) red "stabilizer not stowed" indicator light: this light shall illuminate when the stabilizers are not in the fully stowed position. - Four (4) fully extended beams green indicator lights: these lights shall be illuminated when each of the respective stabilizer beams are fully extended. - Four (4) firm on ground green indicator lights: each light shall be illuminated when its respective stabilizer shoe is in the load supporting condition. <p>Each toggle switch shall activate the engine fast idle automatically.</p> <p>Manual override shall be supplied for each stabilizer control valve.</p>		

	Bidder Complies	
	Yes	No
<p>A "Stabilizers Not Stowed" indicator shall be provided in the driver's compartment. It shall illuminate automatically whenever the stabilizers are not fully stowed to prevent damage to the apparatus if moved. The stabilizer system shall also be wired to the "Do Not Move Indicator Light", which shall flash whenever the apparatus parking brake is not fully engaged and the stabilizers are not fully stowed.</p> <p><u>STABILIZER PADS</u></p> <p>A one (1) position, floating stabilizer pad shall be provided on each stabilizer. The pads shall require no operator adjustment during set up. The stabilizer pad shall have the ability to pivot in a 360 degree plane for set up on uneven terrain.</p> <p><u>AUXILIARY STABILIZER PADS</u></p> <p>A set of four auxiliary pads with handles shall be provided for additional load distribution on soft surfaces. Their size shall be 31.00" x 26.00" and they shall be constructed of a lightweight composite material. The ground contact area for each stabilizer shall be such that a unit pressure not greater than 75 psi (500 kPa) shall be exerted over the ground contact area when the apparatus is loaded to its maximum in-service weight and the aerial device is carrying its rated capacity in every position permitted by the manufacturer. The pads shall be stored in a double stacked configuration, two (2) behind each rear tandem axle in a single bracket.</p> <p><u>CRADLE INTERLOCK SYSTEM</u></p> <p>A cradle interlock system shall be provided to prevent the lifting of the aerial from the nested position until the operator has positioned all the stabilizers in a load supporting configuration. A switch shall be installed at the cradle to prevent operation of the stabilizers once the aerial has been elevated from the nested position.</p> <p><u>STABILIZER PINS</u></p> <p>The stabilizer jacks shall not have holes for the stabilizer pins.</p> <p><u>STABILIZER CONTROL BOX ALUMINUM DOOR</u></p> <p>A vertically hinged smooth aluminum door shall be provided over the stabilizer control box. The door shall be hinged outboard.</p> <p><u>HYDRAULIC SYSTEM</u></p> <p>All high-pressure hoses shall have an abrasion resistant cover, and have a rating greater than or equal to the working pressure of the circuit in which they are installed. All hydraulic fittings shall be plated to minimize corrosion. The fitting shall use an O-ring face seal, where possible, to minimize hydraulic leaks. All pressure carrying hydraulic hoses shall have a 4:1 safety rating based on burst pressure</p> <p>An interlock shall be provided that prevents activation of the hydraulic pump until the transmission is placed in neutral and the parking brake is set as outlined in NFPA standards.</p>		

	Bidder Complies	
	Yes	No
<p>The hydraulic system shall be of the load sense design to minimize heat build up and provide smooth control of the aerial ladder. The system shall meet the performance requirement in NFPA standards, which requires adequate cooling after less than 2 1/2 hours of operations.</p> <p>All hydraulic components that are non-sealing, where failure could result in the aerial movement, shall comply with NFPA standards and have burst strength of 4:1. Dynamic sealing components, where failure could cause aerial movement, shall have a margin of 2:1 on maximum operating pressure per NFPA standards. All hydraulic hoses, tubes, and connections shall have minimum burst strength of 3:1 per NFPA standards.</p> <p>A hydraulic oil pressure gauge shall be supplied at the base control location per NFPA standards.</p> <p>The aerial hydraulic system shall be designed in such a manner that a hydraulic pump failure or line rupture shall not allow the aerial or outriggers to lose position. Hydraulic holding valves shall be mounted directly into cylinders. To insure reliable performance of holding valves, no hoses or tubing shall be permitted between a holding valve and cylinder. The aerial shall incorporate the use of trombone steel tubes inside the stabilizer beams to eliminate hydraulic hose wear and leaks. Hydraulic power to the ladder shall be transferred from the pedestal by a hydraulic swivel.</p> <p><u>HYDRAULIC RESERVOIR</u></p> <p>The hydraulic system shall consist of an oil reservoir mounted to the torque box and plumbed to the hydraulic pump. There shall be plumbing for a supply and return line and a tank drain on the reservoir.</p> <p>The hydraulic pump suction line shall have a shut-off ball valve for pump servicing.</p> <p>The hydraulic oil reservoir fill shall be labeled per NFPA standards. The hydraulic system shall use multi-weight, SAE grade oil. ISO grade shall be based on geographical location. The manufacturer shall certify that the oil meets or exceeds the hydraulic cleanliness rating of 18/15/13 per ISO 4406:1999 before delivery.</p> <p><u>HYDRAULIC FILTERS</u></p> <p>The system shall incorporate the following filters to provide dependable service:</p> <ul style="list-style-type: none"> - Separate magnet (not on strainer) - Reservoir suction strainer: 125 mesh - Pressure filter with dirt alarm: Nominal 5 micron filter with a rating of 6.5 micron @ Beta 200 (99.5% efficiency); 7.5 micron @ Beta 1000 (99.9% efficiency) 		

	Bidder Complies	
	Yes	No
<p>- Return filter with dirt alarm: Nominal 5 micron filter with a rating of 6.5 micron @ Beta 200 (99.5% efficiency); 7.5 micron @ Beta 1000 (99.9% efficiency)</p> <p>- Desiccant breather filter: Water capacity 4 fluid oz, 5 micron rating</p> <p><u>HYDRAULIC CYLINDERS</u></p> <p>All hydraulic cylinders used on the aerial device shall be produced by a manufacturer that specializes in the production of hydraulic cylinders.</p> <p><u>POWER TAKEOFF / HYDRAULIC PUMP</u></p> <p>The apparatus shall be equipped with a power takeoff driven by the chassis transmission and actuated by an electric shift located inside the cab. The power takeoff, which drives the hydraulic pump, shall meet all the requirements for the aerial unit operations. The hydraulic pump shall be a variable displacement piston pump, for consistent and rapid response, and be capable of supplying hydraulic oil at a nominal 50gpm flow at pressures up to 3000 psi. The system shall operate up to 3000 psi with flow controls to protect hydraulic components and incorporate a relief valve set at 3150 psi to prevent over pressurization. The hydraulic pump shall be solely dedicated to aerial operations (no exception). An amber indicator light shall be installed on the cab instrument panel to notify the operator that the power takeoff is engaged.</p> <p>An interlock shall be provided that allows operation of the aerial power takeoff shift only after the chassis spring brake has been set and the chassis transmission has either been placed in the neutral position or drive position after the driveline has been disengaged from the rear axle.</p> <p><u>EMERGENCY PUMP</u></p> <p>The hydraulic system shall be designed with an auxiliary power unit meeting the guidelines of NFPA standards. The auxiliary power unit shall be a 12-volt pump connected to the chassis electrical system. The pump shall provide operation at reduced speeds to store the aerial device and outriggers for road transportation.</p> <p>Self-centering switches shall be provided at the turntable and stabilizer control station to activate the system. The system shall be designed to provide a minimum of 30 minutes of hydraulic power to operate functions (no exception).</p> <p><u>HYDRAULIC SWIVEL</u></p> <p>The aerial ladder shall be equipped with a three (3) port, high pressure hydraulic swivel which shall connect the hydraulic lines from the hydraulic pump and reservoir through the rotation point to the aerial control bank. The hydraulic swivel shall allow for 360 degree continuous rotation of the aerial.</p>		

	Bidder Complies	
	Yes	No
<p><u>ELECTRIC SWIVEL</u></p> <p>The ladder shall be equipped with an electric swivel to allow 360 degrees rotation of the aerial while connecting all electrical circuits through the rotation point. A minimum of 36 collector rings shall be provided that are capable of supplying 20 amp continuous service. All collector rings shall be enclosed and protected with desiccant plugs against condensation and corrosion. No oil or silicone shall be used.</p> <p><u>WATER SWIVEL</u></p> <p>Water shall be transferred to the aerial waterway by means of a 5.00" internal diameter waterway, through the swivel, permitting 360 degree continuous rotation.</p> <p><u>12-BIT ABSOLUTE ENCODER</u></p> <p>The aerial ladder shall be equipped with a 12-Bit Absolute Encoder which provides 4096 counts per shaft turn for position and direction reference.</p> <p>The 12-Bit Absolute Encoder shall provide a unique binary word to reference each position and direction for all 360 degrees of rotation.</p> <p>If the power is interrupted for any reason, the 12-Bit Absolute Encoder shall allow power to be returned to the system without having to re-zero the settings.</p> <p>The 12-Bit Absolute Encoder shall be an integral part of a micro-processor based control system.</p> <p><u>ELECTRICAL SYSTEM</u></p> <p>The 100' platform shall utilize a microprocessor-based control system. The system shall consist of the following components:</p> <p>A tethered stabilizer control shall be provided. The tethered control shall be weatherproof and oil resistant. A Super Bright LED indicator light shall be labeled on a metal photo panel for each function. The electrical connection at the tethered control shall be permanently attached by a strained relieved coil cord that shall allow the operator to move 14ft away from the electrical connection for operation.</p> <p>Remote Stabilizer Controls</p> <p>Weatherproof and oil resistant</p> <p>One (1) green "power" indicator light</p> <p>One (1) red "stabilizer not stowed" indicator light</p> <p>One (1) electric toggle switch for auto level assist</p> <p>One (1) electric toggle switch for the emergency power unit</p>		

	Bidder Complies	
	Yes	No
<p>One (1) electric toggle switch for each stabilizer to control:</p> <p>Extend/retract function</p> <p>Raise/lower function</p> <p>One (1) green "stabilizer fully extended" indicator light for each stabilizer</p> <p>One (1) green "firm on ground" indicator light for each stabilizer</p> <p>Control System Modules</p> <p>Each of the control system modules shall be configured as follows:</p> <p>Sealed to a NEMA 4 rating</p> <p>Operating range from -40 degrees F to 185 degrees F (-40 degrees C to 85 degrees C)</p> <p>Communicate using J1939 data link</p> <p>Two (2) diagnostic LED lights</p> <p>One (1) green light that illuminates when module has power (B+) and ground</p> <p>One (1) red light that flashes to indicate the module is capable of communicating via the data link</p> <p>Ground matrix identification system</p> <p>The following control system modules shall be used:</p> <p>Control Module</p> <p>Main controller for the system</p> <p>RS232 connection allows for computer diagnostics</p> <p>Power Module</p> <p>Built-in fault sensing</p> <p>Eight (8) digital outputs</p> <p>Pulse width modulating (PWM) capable</p> <p>15A continuous per output</p> <p>Circuit protection based on actual current draw (not affected by heat)</p>		

	Bidder Complies	
	Yes	No
<p>Constant Current Module</p> <p>Built-in fault sensing</p> <p>Four (4) analog inputs</p> <p>Eight (8) digital outputs</p> <p>Pulse width modulating (PWM) capable</p> <p>4A continuous per output</p> <p>Circuit protection based on actual current draw (not affected by heat)</p> <p>Input Module</p> <p>16 software selectable (digital or analog) inputs</p> <p>Output Module</p> <p>16 digital outputs</p> <p>Input/Output Module</p> <p>Eight (8) software selectable (digital or analog) inputs</p> <p>Eight (8) digital outputs</p> <p><u>TRACKING LIGHTS</u></p> <p>There shall be two (2) 12 volt DC LED lights furnished on the aerial device.</p> <ul style="list-style-type: none"> • One (1) installed on the driver's side of the base section of the aerial device. • One (1) installed on the passenger's side of the base section of the aerial device. <p>The painted parts of this light assembly to be white.</p> <p>There shall be a switch with appropriate identification labels provided at the turntable console for the tracking lights.</p> <p><u>LIGHTING ON AERIAL LADDER</u></p> <p>There shall be LED rung lighting provided on both sides of the aerial ladder base, mid, and fly sections. The lighting shall be located adjacent to the ladder rungs along the lower rail of the ladder sections and shall run the length of the ladder section.</p>		

	Bidder Complies	
	Yes	No
<p>The color of the sections shall be:</p> <ul style="list-style-type: none"> • The base section of the ladder to be green. • The mid section of the ladder to be amber. • The fly section of the ladder to be red. <p>The LED rung lighting shall be activated when a switch at the turntable operator's panel is activated through the aerial master.</p> <p>The lights may be load managed when the parking brake is applied.</p> <p><u>STABILIZER WARNING LIGHTS</u></p> <p>There shall be four (4) LED flashing warning lights with chrome flanges installed, one (1) on each stabilizer cover panel.</p> <ul style="list-style-type: none"> • The front stabilizer pan lights shall be red LED with a clear lens • The rear stabilizer pan lights shall be red LED with a clear lens <p>These warning lights shall be activated by the same switch as the side warning lights.</p> <p><u>STABILIZER BEAM WARNING LIGHTS</u></p> <p>Two (2) 4.00" diameter red LED flashing lights shall be mounted on each stabilizer, one (1) facing forward and one (1) facing rearward.</p> <p>The lights shall be recessed in the horizontal beam of the stabilizer.</p> <p>These warning lights shall be activated with the aerial master switch.</p> <p><u>STABILIZER SCENE LIGHTS</u></p> <p>There shall be one (1) LED strip light installed under each stabilizer beam to illuminate the surrounding area. A total of four (4) lights shall be installed. The lights shall be activated by the aerial master switch.</p> <p><u>PLATFORM 120-VOLT ELECTRIC SYSTEM</u></p> <p>Two (2), 20 amp, NEMA L5-20, 120-volt, three (3)-prong twist lock receptacles with weatherproof covers shall be provided in the aerial platform. One (1) receptacle shall be located at the platform control console and one (1) shall be located at the rear of the basket. Each receptacle shall be supplied from individual branch circuits protected by dedicated 20 amp/120-volt circuit breakers. All wiring shall be sized to and conform to the latest edition of NEC standards.</p>		

	Bidder Complies	
	Yes	No
<p><u>120 VOLT UNDER PLATFORM LIGHTING</u></p> <p>There shall be Two (2) LED 120 volt floodlight(s) installed in semi-recessed housing(s) provided under the platform basket, under the driver and passenger side, facing down.</p> <p>The painted parts of this light assembly to be black</p> <p>Light(s) shall be switched at the platform/tip only.</p> <p><u>120 VOLT BASKET LIGHTING</u></p> <p>There shall be One (1) 120 volt AC LED flood light(s) provided at the platform basket.</p> <p>The painted parts of this light assembly to be white.</p> <p>The light(s) shall be located on the center, front of platform.</p> <p>Light(s) shall be switched at the platform/tip only</p> <p><u>2-WAY AERIAL COMMUNICATION SYSTEM</u></p> <p>There shall be a two-way intercom system provided. The control module shall be located on the turntable operator console, provided there is room, and have an LED volume display and push-button volume control.</p> <p>A hands free module shall be located at the aerial tip or platform and constantly transmit to the other module unless the control module push-to-talk button is pressed.</p> <p>Each intercom unit shall be weatherproof.</p> <p><u>BREATHING AIR</u></p> <p>Breathing air shall be supplied to the aerial platform. The air system shall incorporate one (1), 437 cubic foot, 4500-psi cylinder. To allow the turntable operator an unobstructed view of the platform the cylinder shall be mounted directly in front of the turntable and below the ladders. The air cylinder shall be interconnected through a pressure regulator located at the air cylinder. A shutoff valve with guard shall be provided on the cylinder. The air shall be routed to the basket using hose especially designed for use in breathing air systems. At the platform, the breathing air shall be accessible via two (2) quick couplings for air masks. These shall have a Hansen brass 3000 series coupling. One (1) coupling shall be located at the front of the basket on the right side and one (1) coupling shall be located at the rear of the basket on the left hand side. There shall be a weather resistant storage compartment for two (2) air masks provided in the basket. A 50' recharge hose shall be provided for refilling the air cylinder without having to remove the tank from its mounting.</p> <p>The breathing air cylinder shall be designed and constructed to conform to the requirements of the United Nations (UN) on the transportation of dangerous goods.</p>		

	Bidder Complies	
	Yes	No
<p><u>BREATHING AIR LEVEL AND WARNING SYSTEM</u></p> <p>The level of breathing air remaining shall be visible on the LCD display at all operating positions. The display shall incorporate a low-pressure warning circuit that activates an audible alarm when 20% maximum air cylinder capacity remains. A second, louder audible alarm shall activate when the remaining air level drops to 10% of maximum air cylinder capacity.</p> <p><u>RAISED AERIAL PEDESTAL</u></p> <p>The aerial pedestal shall be raised to accommodate the height of the cab.</p> <p><u>3-IN-1 BASKET OPTION BRACKETS</u></p> <p>One (1) set of brackets shall be supplied which shall have the following three (3) options combined into one (1) set of brackets.</p> <p>Brackets shall be provided for use at the front of the platform basket to increase the safety of firefighters during fireground and rescue operations. These brackets shall be capable of holding up to a 20' roof ladder securely in place. The roof ladder shall be 19.00" wide. The ladder shall be secured through its beams and one (1) rung, by a bar capable of being latched in place and able to withstand a minimum of a 500 pound load while maintaining a minimum of a two to one (2:1) safety factor. The complete system shall maintain and exceed this criteria as well. There shall also be a latching pawl to keep the ladder in a vertical position at all times and shall latch on a rung, at least two (2) rungs below the primary attachment point. Strain gauging and testing has been completed on the system, (ladder and complete holding device), proving the above criteria has been satisfied.</p> <p>Two (2) rappelling arms shall be provided. The rappelling arms shall mount to the front of the platform basket, one (1) each side over the monitor/s and shall be held in place with four (4) hardened 1.00" hitch pins, two (2) for each bracket. The rappelling arms shall be easily removable for storage. Each rappelling arm shall have a capacity of 300#.</p> <p>Rescue basket support brackets shall be provided. The brackets shall mount to the front of the platform basket, one (1) each side over the monitor/s and shall be held in place with four (4) hardened 1.00" hitch pins, two (2) for each bracket. The brackets shall be easily removable for storage. Two (2) quick clip basket straps shall be used to secure the basket to the brackets.</p> <p><u>AERIAL TURNTABLE CHAIN</u></p> <p>A chain shall be installed at the aerial turntable.</p> <p><u>AERIAL WATERWAY</u></p> <p>The aerial waterway shall be capable of being supplied by either a midship mounted pump or an external water source through a 5.00" intake at the rear of the apparatus.</p>		

	Bidder Complies	
	Yes	No
<p>A 5.00" water swivel shall be installed below the aerial turntable permitting the ladder to rotate 360 degrees continuously.</p> <p>A 5.00" water swivel shall be installed at the aerial heel pivot pin that shall permit water tower operations of -5 degrees to 75 degrees. The heel pivot pin shall not be integral with the waterway swivel at any point. The waterway design shall allow complete servicing of the waterway swivel without disturbing the heel pivot pin.</p> <p>A telescoping aluminum waterway shall be installed beneath the center of the aerial ladder. The waterway shall consist of a 5.00" diameter tube for the base section, 4.50" diameter tube for the mid-section and 4.00" diameter tube for the fly section.</p> <p>A 1.50" drain shall be provided for the waterway with the control at the rear of the unit.</p> <p><u>WATERWAY SEALS</u></p> <p>The waterway seals shall be of type-B PolyPak design, composed of nitroxile seal and a nitrile wiper, which together offer maximum stability and extrusion resistance on the waterway. The seal shall be capable of withstanding pressures up to 2000 psi, temperatures in excess of 250 degrees Fahrenheit and have resistance to all foam generating solutions. The seals shall be internally lubricated.</p> <p>The waterway seals shall have automatic centering guides constructed of synthetic thermalpolymer. The guides shall provide positive centering of the extendible sections within each other and the base section to insure longer service life and smoother operation.</p> <p><u>PLATFORM WATER SYSTEM</u></p> <p>A 4.00" (internal diameter) water swivel shall connect the fly section waterway to the platform waterway. The water swivel shall permit water tower operations from -5 degrees to 75 degrees. The water shall be routed from the swivel to a 4.00" gear operated butterfly valve on the front of the platform using a 4.00" tube. The deluge gun shall be bolted onto the butterfly valve.</p> <p>A 2.50" preset pressure relief valve shall be provided in the waterway system. It shall be designed to protect the aerial waterway from excess pressure. It shall dump water to the ground when operating.</p> <p>A shower nozzle rated at 75 gpm shall be provided beneath the platform for heat protection for the platform personnel. A direct linkage control for the shower nozzle shall be provided.</p> <p>Two (2) - 2.50" preconnects shall be provided at the front of the platform. The preconnects shall be gated at the platform. One preconnect shall be furnished with 2.50" NST threads and anodized aluminum cap and the other shall be provided with a 2.50" x 1.50" NST reducer and an anodized aluminum cap.</p>		

	Bidder Complies	
	Yes	No
<p><u>AERIAL MONITOR</u> A monitor with stow and deploy shall be provided at the front of the platform with a Arkon 2000 gpm Model 5178 electric nozzle with built in stream shaper.</p> <p>The monitor's functions shall be controlled electrically from two (2) separate locations. One (1) control shall be located at the turntable control console and the other at the basket control console.</p> <p><u>WATERWAY FLOWMETER</u> Waterway flow, including total water flowed, shall be monitored by the microprocessor. An LCD display shall be located at the upper and lower control stations.</p> <p><u>REAR INLET</u> A 5.00" NST inlet to the aerial waterway shall be provided at the rear of the apparatus. It shall be furnished with a 5.00" chrome plated adapter and a 5.00" chrome plated, long handle cap.</p> <p><u>TOOLS</u> The following tools shall be provided for retorquing of all specified bolts as recommended by the manufacturer:</p> <p>Torque Wrench</p> <p>All Required Extensions, Sockets and Adapters</p> <p>4-to-1 Multiplier</p> <p><u>MANUALS</u> The aerial manufacturer shall provide two (2) operator maintenance manuals and two (2) wiring diagrams pertaining to the aerial device.</p> <p><u>INITIAL INSTRUCTION</u> On initial delivery of the fire apparatus, the contractor shall supply a qualified representative to demonstrate the apparatus and provide initial instruction to the fire department regarding the operation, care, and maintenance of the apparatus for a period of three (3) days.</p> <p><u>LOOSE EQUIPMENT</u> The following equipment shall be furnished with the completed unit:</p> <p>- One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit</p> <p>One (1) set of reflective emergency triangles shall be provided.</p>		

	Bidder Complies	
	Yes	No
<p><u>NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT</u></p> <p>The following loose equipment as outlined in NFPA 1901, 2016 edition, section 9.9.3 and 9.9.4 shall be provided by the fire department.</p> <ul style="list-style-type: none"> • 800 ft (240 m) of 2.50" (65 mm) or larger fire hose, in any combination. • 400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose, in any combination. • One (1) handline nozzle, 200 gpm (750 L/min) minimum. • Two (2) handline nozzles, 95 gpm (360 L/min) minimum. • One (1) playpipe with shutoff and 1.00" (25 mm), 1.125" (29 mm), and 1.25" (32 mm) tips. • One (1) SCBA complying with NFPA 1981 for each assigned seating position, but not fewer than four (4), mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer. • One (1) spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s). • One (1) first aid kit. • Four (4) salvage covers, each a minimum size of 12 ft × 14 ft (3.6 m × 5.5 m). • Four (4) combination spanner wrenches. • Two (2) hydrant wrenches. • One (1) double female 2.50" (65 mm) adapter with National Hose threads. • One (1) double male 2.50" (65 mm) adapter with National Hose threads. • One (1) rubber mallet, for use on suction hose connections. • Four (4) ladder belts meeting the requirements of NFPA 1983. • One (1) 150 ft (45 m) light-use life safety rope meeting the requirements of NFPA 1983. • One (1) 150 ft (45 m) general-use life safety rope meeting the requirements of NFPA 1983. • One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, <i>Standard for High Visibility Public Safety Vests</i>, and have a five-point breakaway feature that includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front. • Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (152 mm) from the top of the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the 6.00" (152 mm) band. • Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities. • One (1) automatic external defibrillator (AED). 		

Bidder Complies	
Yes	No

- If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, shall be carried mounted in brackets fastened to the apparatus.
- If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side shall be carried. Any intake connection larger than 3.00" (75 mm) shall include a pressure relief device that meets the requirements of 16.6.6.
- If the apparatus does not have a 2.50" National Hose (NH) intake, an adapter from 2.50" NH female to a pump intake shall be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.
- If the supply hose carried has other than 2.50" National Hose (NH) threads, adapters shall be carried to allow feeding the supply hose from a 2.50" NH thread male discharge and to allow the hose to connect to a 2.50" NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.

SOFT SUCTION HOSE PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 9.8.2.1 requires a minimum of 20' of suction hose or 15' of supply hose shall be carried.

Hose is not on the apparatus as manufactured. The fire department shall provide suction or supply hose.

DRY CHEMICAL EXTINGUISHER

There shall be One (1) extinguisher, 20 lb dry chemical extinguisher(s) provided.

WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT

NFPA 1901, 2016 edition, section 9.9.4 requires one (1) 2.5 gallon or larger water extinguisher mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The fire department shall provide and mount the extinguisher.

AERIAL SAFETY BELTS

The following safety belts shall be provided:

- no small/medium belts
- one (1) large/extra large belt for (34"-42" waist)
- three (3) XXL belts for (42"-50" waist)

	Bidder Complies	
	Yes	No
<p><u>FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT</u></p> <p>NFPA 1901, 2016 edition, Section 9.9.4 requires one (1) flathead axe mounted in a bracket fastened to the apparatus.</p> <p>The axe is not on the apparatus as manufactured. The fire department shall provide and mount the axe.</p> <p><u>PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT</u></p> <p>NFPA 1901, 2016 edition, Section 9.9.4 requires one (1) pickhead axe mounted in a bracket fastened to the apparatus.</p> <p>The axe is not on the apparatus as manufactured. The fire department shall provide and mount the axe.</p> <p><u>PAINT</u></p> <p>The exterior custom cab and body painting procedure shall consist of a seven (7) step finishing process as follows:</p> <ol style="list-style-type: none"> 1. <u>Manual Surface Preparation</u> - All exposed metal surfaces on the custom cab and body shall be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces shall be removed and sanded to a smooth finish. Exterior seams shall be sealed before painting. Exterior surfaces that shall not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate. 2. <u>Chemical Cleaning and Pretreatment</u> - All surfaces shall be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces shall be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces shall be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion. A final pure water rinse shall be applied to all metal surfaces. 3. <u>Surfacer Primer</u> - The Surfacer Primer shall be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a Critical aesthetic finish. The Surfacer Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded. 4. <u>Finish Sanding</u> - The Surfacer Primer shall be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat. 5. <u>Sealer Primer</u> - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surfacer Primer. The Sealer Primer is a two- 		

	Bidder Complies	
	Yes	No
<p>component high solids urethane that goes on smooth and provides excellent gloss hold out when topcoated.</p> <p>6. <u>Basecoat Paint</u> - Two coats of a high performance, two component high solids polyurethane basecoat shall be applied. The Basecoat shall be applied to a thickness that shall achieve the proper color match. The Basecoat shall be used in conjunction with a urethane clear coat to provide protection from the environment.</p> <p>7. <u>Clear Coat</u> - Two (2) coats of Clear Coat shall be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style and roll-up doors shall be Clear Coated to match the body. Paint warranty for the roll-up doors shall be provided by the roll-up door manufacture.</p> <p>Each batch of basecoat color shall be checked for a proper match before painting of the cab and the body. After the cab and body are painted, the color shall verified again to make sure that it matches the color standard. Electronic color measuring equipment shall be used to compare the color sample to the color standard entered into the computer. Color specifications shall be used to determine the color match. A Delta E reading shall be used to determine a good color match within each family color.</p> <p>All removable items such as brackets, compartment doors, door hinges, and trim shall be removed and separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly shall be finish painted before assembly.</p> <p>The paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) are to meet or exceed Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels are to meet or exceed the #6 A.C.T.standard in critical areas. These requirements must be met in order for the exterior paint finish to be considered acceptable. The manufacture's written paint standards shall be available upon request.</p> <p>The cab shall be two-tone, with the upper section painted #10 white along with a shield design on the cab face and lower section of the cab and body painted #90 red.</p> <p><u>PAINT - ENVIRONMENTAL IMPACT</u></p> <p>Contractor shall meet or exceed all current State regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water and soil. Controls shall include the following conditions:</p> <ul style="list-style-type: none"> • Topcoats and primers shall be chrome and lead free. • Metal treatment chemicals shall be chrome free. The wastewater generated in the metal treatment process shall be treated on-site to remove any other heavy metals. 		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> • Particulate emission collection from sanding operations shall have a 99.99% efficiency factor. • Particulate emissions from painting operations shall be collected by a dry filter or water wash process. If the dry filter is used, it shall have an efficiency rating of 98.00%. Water wash systems shall be 99.97% efficient • Water from water wash booths shall be reused. Solids shall be removed on a continual basis to keep the water clean. • Paint wastes are disposed of in an environmentally safe manner. • Empty metal paint containers shall be to recover the metal. • Solvents used in clean-up operations shall be recycled on-site or sent off-site for distillation and returned for reuse. <p>Additionally, the finished apparatus shall not be manufactured with or contain products that have ozone depleting substances. Contractor shall, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with his State EPA rules and regulations.</p> <p><u>PAINT CHASSIS FRAME ASSEMBLY</u></p> <p>The chassis frame assembly shall be painted black before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.</p> <p>Components that are included with the chassis frame assembly that shall be painted are:</p> <ul style="list-style-type: none"> • Frame rails • Frame liners • Cross members • Axles • Suspensions • Steering gear • Battery boxes • Bumper extension weldment • Frame extensions • Body mounting angles • Rear Body support substructure (front and rear) • Pump house substructure • Air tanks • Fuel tank • Castings • Individual piece parts used in chassis and body assembly 		

	Bidder Complies	
	Yes	No
<p>Components treated with epoxy E-coat protection prior to paint:</p> <ul style="list-style-type: none"> • Two (2) C-channel frame rails • Two (2) frame liners <p><u>PAINT, REAR WHEELS</u></p> <p>All wheel surfaces, inside and outside of inboard steel wheels only, shall be provided with powder coat paint #90 red.</p> <p><u>AERIAL DEVICE BOOM SUPPORT PAINT</u></p> <p>The aerial device boom support shall be painted job color to match lower body paint color.</p> <p><u>COMPARTMENT INTERIOR PAINT</u></p> <p>The interior of compartmentation shall be painted with a gray spatter type paint.</p> <p><u>AERIAL DEVICE PAINT COLOR</u></p> <p>The aerial device paint procedure shall consist of a six (6) step finishing process as follows:</p> <ol style="list-style-type: none"> 1. <u>Manual Surface Preparation</u> - All exposed metal surfaces on the aerial device structural components above the rotation point shall be thoroughly cleaned and mechanically shot-blasted to remove metal impurities and prepare the aerial for painting. 2. <u>Primer/Surfacer Coats</u> - A two (2) component urethane primer/surfacer shall be hand applied to the chemically treated metal surfaces to provide a strong corrosion protective base coat and to smooth out the surface. All seams shall be caulked before painting. 3. <u>Hand Sanding</u> - The primer/surfacer coat shall be lightly sanded to an ultra smooth finish. 4. <u>Sealer Primer Coat</u> - A two (2) component sealer primer coat shall be applied over the sanded primer. 5. <u>Topcoat Paint</u> - Urethane base coat shall be applied to opacity for correct color matching. 6. <u>Clearcoat</u> - Two (2) coats of an automotive grade two (2) component urethane shall be applied. <p>Surfaces that shall not be painted include all chrome plated, polished stainless steel, anodized aluminum and bright aluminum treadplate.</p> <p>All buy out components, such as monitor, nozzle, gauges, etc. shall be supplied as received from the vendor.</p> <p>Removable items such as brackets shall be removed and painted separately to ensure paint coverage behind all mounted items.</p>		

	Bidder Complies	
	Yes	No
<p>The aerial device (turntable, ladder sections and platform) shall be painted white 10 using the six (6) step finishing process. The support structure, rotation motor, components below the rotation point and the stabilizers shall be cleaned, caulked, primed and painted high gloss black.</p> <p><u>REFLECTIVE STRIPES</u></p> <p>Three (3) reflective stripes shall be provided across the front of the vehicle and along the sides of the body. The reflective band shall consist of a 1.00" white stripe at the top with a 1.00" gap then a 6.00" white stripe with a 1.00" gap and a 1.00" white stripe on the bottom.</p> <p>The reflective band provided on the cab face shall be below the headlights on the fiberglass.</p> <p><u>REAR CHEVRON STRIPING</u></p> <p>There shall be alternating chevron striping located on the rear-facing vertical surface of the apparatus. Covered surfaces shall include the rear wall and aluminum doors. Rear compartment doors, stainless steel access doors, and the rear bumper shall not be covered.</p> <p>The colors shall be red and fluorescent yellow green diamond grade.</p> <p>Each stripe shall be 6.00" in width.</p> <p>This shall meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface shall be covered with chevron striping.</p> <p><u>REFLECTIVE STRIPE ON STABILIZERS</u></p> <p>There shall be a 4.00" wide fluorescent yellow green diamond grade reflective stripe provided on the forward and rear facing side of all aerial stabilizers.</p> <p><u>REFLECTIVE STRIPES</u></p> <p>Three (3) reflective stripes shall be provided across the sides and front. The reflective bands shall consist of a 1.00" ruby red stripe at the top with a 1.00" gap then a 6.00"ruby red stripe with a 1.00" gap and a 1.00"ruby red stripe on the bottom. This band shall stay consistent with the striping on the body.</p> <p><u>"Z" JOG IN REFLECTIVE STRIPE</u></p> <p>There shall be one (1) "Z"-shaped jog(s) provided in the reflective stripe design.</p> <p><u>REFLECTIVE STRIPE OUTLINE</u></p> <p>A black outline shall be applied on the top and the bottom of the reflective band. There shall be three (3) set of outline stripes required.</p> <p><u>VINYL STRIPE ON LOWER REAR PLATFORM BASKET</u></p> <p>Prior to the basket being mounted on the aerial tip, the lower portion rear facing surfaces each side of the rear of the basket, approximately 12.00" tall from bottom of basket up and full width</p>		

	Bidder Complies	
	Yes	No
<p>shall have a Blackvinyl stripe provided. There shall also be the same color stripe provided that is approximately 3.00" tall from the bottom of the lower fly tip cross tube weldment to the top of this weldment.</p> <p>These vinyl stripes shall aid in limiting reflection from the lightbar on the back of the basket into the cab when driving, but shall not take away from the overall portion of the basket being visible while in operation.</p> <p><u>CAB DOOR REFLECTIVE STRIPE</u></p> <p>A 6.00" x 16.00" fluorescent yellow green diamond grade reflective stripe shall be provided across the interior of each cab door. The stripe shall be located approximately 1.00" up from the bottom, on the door panel.</p> <p>This stripe shall meet the NFPA 1901 requirement.</p> <p><u>RUST PROOF, TORQUE BOX</u></p> <p>A coating shall be applied to the bottom and the two (2) sides of the torque box. The coating texture shall be waxy and pliable after drying so it shall not chip, crack, or peel off during normal vehicle operations.</p> <p>The rust proofing material shall be black, and is a coating of a corrosion inhibitor for long-term protection against corrosion.</p> <p><u>UNDERCOATING, CAB & BODY</u></p> <p>The apparatus shall be properly treated by an authorized dealer.</p> <p>The underside of the apparatus shall be undercoated with an asphalt petroleum based material, dark in color.</p> <p>The undercoating material utilized on the apparatus shall be formulated to resist corrosion and deaden unwanted sound or road noise.</p> <p>Coating texture shall appear firm, flexible, and resistant to abrasion. Minimum dry film thickness shall be in the range of 8.00 to 12.00 mils.</p> <p>The material shall be applied to the following areas:</p> <ul style="list-style-type: none"> -Body and cab wheel well fender liners, on the back side only. -Underside of body and cab sheet metal, and structural components. -Underside and vertical sides of all sheet metal compartmentation, including support angles. 		

	Bidder Complies	
	Yes	No
<p>-Structural support members under running boards, rear platforms, battery boxes, walkways, etc.</p> <p>-Inside surfaces of the pump heat enclosure. (when installed)</p> <p>-Suspension mounts.</p> <p>-Transmission cooler fittings.</p> <p>-Engine mounts.</p> <p>-Bottom of torque boxes</p> <p>-Bottom and outside of framerails behind the forward edge of the water pump.</p> <p>Exclusions shall be:</p> <p>-Engine</p> <p>-Transmission</p> <p>-Drive lines</p> <p>-PTO's</p> <p>-Stabilizer controls (Aerials)</p> <p>-Proximity Switches (Aerials)</p> <p>-Schroeder valves and tank drains</p> <p>-Intake valves</p> <p>-Air Horns, sirens and back-up alarms</p> <p>-Framerails forward of the forward edge of the water pump.</p> <p><u>FIRE APPARATUS PARTS CD MANUAL</u></p> <p>There shall be two (2) custom parts manuals for the complete fire apparatus provided in CD format with the completed unit.</p> <p>The manuals shall contain the following:</p> <ul style="list-style-type: none"> • Job number • Part numbers with full descriptions • Table of contents 		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> • Parts section sorted in functional groups reflecting a major system, component, or assembly • Parts section sorted in alphabetical order • Instructions on how to locate parts <p>The manuals shall be specifically written for the chassis and body model being purchased. It shall not be a generic manual for a multitude of different chassis and bodies.</p> <p><u>SERVICE PARTS INTERNET SITE</u></p> <p>The service parts information included in these manuals are also available on the factory website. The website offers additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website also features electronic search tools to assist in locating parts quickly.</p> <p><u>CHASSIS SERVICE CD MANUALS</u></p> <p>There shall be two (2) CD format chassis service manuals containing parts and service information on major components provided with the completed unit.</p> <p>The manual shall contain the following sections:</p> <ul style="list-style-type: none"> • Job number • Table of contents • Troubleshooting • Front Axle/Suspension • Brakes • Engine/Tires • Wheels • Cab • Electrical, DC • Air Systems • Plumbing • Appendix <p>The manual shall be specifically written for the chassis model being purchased. It shall not be a generic manual for a multitude of different chassis and bodies.</p> <p><u>CHASSIS OPERATION CD MANUALS</u></p> <p>There shall be two (2) CD format chassis operation manuals provided.</p>		

	Bidder Complies	
	Yes	No
<p><u>ONE (1) YEAR MATERIAL AND WORKMANSHIP</u></p> <p>Each new piece of apparatus shall be provided with a minimum one (1) year basic apparatus material and workmanship limited warranty. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><u>THREE (3) YEAR MATERIAL AND WORKMANSHIP</u></p> <p>The new chassis shall be provided with a three (3) year material and workmanship limited warranty. The warranty shall cover such portions of the chassis built by the manufacturer as being free from structural failures caused by defects in material and workmanship that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><u>ENGINE WARRANTY</u></p> <p>A five (5) year limited engine warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.</p> <p><u>STEERING GEAR WARRANTY</u></p> <p>A three (3) year limited steering gear warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.</p> <p><u>FIFTY (50) YEAR STRUCTURAL INTEGRITY</u></p> <p>The chassis frame and crossmembers shall be provided with a fifty (50) year material and workmanship limited warranty. The warranty shall cover the chassis frame and crossmembers as being free from defects in material and workmanship that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><u>FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY</u></p> <p>Independent front suspension shall be provided with a three (3) year material and workmanship limited warranty. The manufacturer's warranty shall provide that the independent front suspension and steering gears be free from any defect related to material and workmanship on the portion of the apparatus built by the manufacturer that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><u>REAR AXLE TWO (2) YEAR MATERIAL AND WORKMANSHIP WARRANTY</u></p> <p>A two (2) year axle limited warranty shall be provided.</p>		

	Bidder Complies	
	Yes	No
<p><u>BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY</u> A three (3) year brake system limited warranty shall be provided.</p> <p><u>TEN (10) YEAR STRUCTURAL INTEGRITY</u> The new cab shall be provided with a ten (10) year material and workmanship limited warranty. The warranty shall cover such portions of the cab built by the manufacturer as being free from structural failures caused by defects in material and workmanship that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><u>TEN (10) YEAR PRO-RATED PAINT AND CORROSION</u> Each new piece of apparatus shall be provided with a ten (10) year pro-rated paint and corrosion limited warranty on the apparatus cab. The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><u>FIVE (5) YEAR MATERIAL AND WORKMANSHIP</u> The electronic modules and display(s) shall be provided with a five (5) year material and workmanship limited warranty. The warranty shall cover electronic modules to be free from failures caused by defects in material and workmanship.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><u>CAMERA SYSTEM WARRANTY</u> A fifty four (54) month warranty shall be provided for the camera system.</p> <p><u>COMPARTMENT LIGHT WARRANTY</u> A ten (10) year material and workmanship limited warranty shall be provided for the Pierce 12 volt DC LED strip lights. The warranty shall cover the LED strip lights to be free from defects in material and workmanship that would arise under normal use.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><u>TRANSMISSION WARRANTY</u> The transmission shall have a five (5) year/unlimited mileage warranty covering 100 percent parts and labor. The warranty is to be provided by transmission supplier and not the apparatus builder.</p>		

	Bidder Complies	
	Yes	No
<p><u>TRANSMISSION COOLER WARRANTY</u></p> <p>The transmission cooler shall carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty shall also be in effect for the first three (3) years of the warranty coverage and shall not exceed \$10,000 per occurrence. A copy of the warranty certificate shall be submitted with the bid package.</p> <p><u>WATER TANK WARRANTY</u></p> <p>The poly water tank shall be provided with a lifetime material and workmanship limited warranty.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><u>TEN (10) YEAR STRUCTURAL INTEGRITY</u></p> <p>Each new piece of apparatus shall be provided with a ten (10) year material and workmanship limited warranty on the apparatus body. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><u>ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY</u></p> <p>A roll-up door limited warranty shall be provided. The roll-up door shall be warranted against manufacturing defects for a period of ten (10) years. A five (5) year limited warranty shall be provided on painted roll up doors.</p> <p>A copy of the warranty certificate shall be submitted with the bid package.</p> <p><u>PUMP WARRANTY</u></p> <p>The pump shall be provided with a five (5) year material and workmanship limited warranty.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><u>TEN (10) YEAR PUMP PLUMBING WARRANTY</u></p> <p>The stainless steel plumbing components and ancillary brass fittings used in the construction of the water/foam plumbing system shall be warranted for a period of ten (10) years or 100,000 miles. This covers structural failures caused by defective design or workmanship, or perforation caused by corrosion, provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original purchaser for a period of ten years from the date of delivery.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p>		

	Bidder Complies	
	Yes	No
<p><u>TWENTY (20) YEAR AERIAL DEVICE STRUCTURAL INTEGRITY WARRANTY</u></p> <p>The aerial device shall be provided with a twenty (20) year material and workmanship limited warranty. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service. This warranty shall be limited to the torque box, turntable, aerial sections and other structural components.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><u>AERIAL SWIVEL WARRANTY</u></p> <p>A five (5) year limited swivel warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><u>HYDRAULIC SYSTEM COMPONENTS WARRANTY</u></p> <p>Aerial hydraulic system components shall be provided with a five (5) year material and workmanship limited warranty.</p> <p><u>HYDRAULIC SEAL WARRANTY</u></p> <p>Aerial hydraulic seals shall be provided with a three (3) year material and workmanship limited warranty.</p> <p>A copy of the warranty certificates shall be submitted with the bid package (no exception).</p> <p><u>AERIAL WATERWAY WARRANTY</u></p> <p>A ten (10) year limited waterway warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><u>FOUR (4) YEAR PRO-RATED PAINT AND CORROSION</u></p> <p>The aerial device shall be provided with a four (4) year pro-rated paint and corrosion limited warranty. The warranty shall cover exterior painted surfaces of the aerial device to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><u>FIVE (5) YEAR MATERIAL AND WORKMANSHIP</u></p> <p>The electronic modules and display(s) shall be provided with a five (5) year material and workmanship limited warranty. The warranty shall cover electronic modules to be free from failures caused by defects in material and workmanship.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p>		

	Bidder Complies	
	Yes	No
<p><u>SIX (6) YEAR GENERATOR MATERIAL AND WORKMANSHIP WARRANTY</u> A six (6) year generator limited warranty shall be provided.</p> <p><u>TEN (10) YEAR PRO-RATED PAINT AND CORROSION</u> Each new piece of apparatus shall be provided with a ten (10) year pro-rated paint and corrosion limited warranty on the apparatus body. The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><u>VEHICLE STABILITY CERTIFICATION</u> The fire apparatus manufacturer shall provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification shall be provided at the time of bid.</p> <p><u>ENGINE INSTALLATION CERTIFICATION</u> The fire apparatus manufacturer shall provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification shall be provided at the time of bid.</p> <p><u>POWER STEERING CERTIFICATION</u> The fire apparatus manufacturer shall provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification shall be provided at the time of bid.</p> <p><u>CAB INTEGRITY CERTIFICATION</u> The fire apparatus manufacturer shall provide, at the time of bid, a cab integrity certification. Testing shall meet or exceed the requirements below:</p> <ul style="list-style-type: none"> • European Occupant Protection Standard ECE Regulation No.29. • SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks. • SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks. <p>There shall be no exception to any portion of the cab integrity certification. Nonconformance shall lead to immediate rejection of bid.</p> <p><u>CAB DOOR DURABILITY CERTIFICATION</u> Robust cab doors help protect occupants. Cab doors shall survive a 200,000 cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder shall certify that the</p>		

	Bidder Complies	
	Yes	No
<p>sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.</p> <p><u>WINDSHIELD WIPER DURABILITY CERTIFICATION</u></p> <p>Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers shall survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 <i>Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles</i>. The bidder shall certify that the wiper system design has been tested and that the wiper system has met these criteria.</p> <p><u>ELECTRIC WINDOW DURABILITY CERTIFICATION</u></p> <p>Cab window roll-up systems can cause maintenance problems if not designed for long service life. The window regulator design shall complete 30,000 complete up-down cycles and still function normally when finished. The bidder shall certify that sample doors and windows similar to those provided on the apparatus have been tested and have met these criteria without malfunction or significant component wear.</p> <p><u>SEAT BELT ANCHOR STRENGTH</u></p> <p>Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design shall withstand 3000 lb of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder shall certify that each anchor design was pull tested to the required force and met the appropriate criteria.</p> <p><u>SEAT MOUNTING STRENGTH</u></p> <p>Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design shall be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder shall certify that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.</p> <p><u>CAB DEFROSTER CERTIFICATION</u></p> <p>Visibility during inclement weather is essential to safe apparatus performance. The defroster system shall clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure And Performance Requirements - Trucks, Buses, And Multipurpose Vehicles. The bidder shall certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.</p> <p><u>CAB HEATER CERTIFICATION</u></p> <p>Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. The cab heaters shall warm the cab 75 F from a cold-</p>		

Bidder Complies	
Yes	No

soak, within 30 minutes when tested using the coolant supply methods found in SAE J381. The bidder shall certify that a substantially similar cab has been tested and has met these criteria.

AMP DRAW REPORT

The bidder shall provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus shall provide the following:

- Documentation of the electrical system performance tests.
- A written load analysis, which shall include the following:
 - The nameplate rating of the alternator.
 - The alternator rating under the conditions specified per:
 - Applicable NFPA 1901 or 1906 (Current Edition).
 - The minimum continuous load of each component that is specified per:
 - Applicable NFPA 1901 or 1906 (Current Edition).
 - Additional loads that, when added to the minimum continuous load, determine the total connected load.
 - Each individual intermittent load.

All of the above listed items shall be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).